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No. LIII.

PAPERS RELATING TO THE GENERAL REVENUE SURVEY OF THE MADRAS PRESIDENCY.

MADRAS:
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PAPERS RELATING TO THE GENERAL REVENUE SURVEY OF THE MADRAS PRESIDENCY.

REVENUE DEPARTMENT,
FORT SAINT GEORGE,
22nd September 1855.

No. 1073.

From

J. D. BOURDILLON, Esq.,
Secretary to the Government of Fort St. George.

To

CECIL BEADON, Esq.,
Secretary to the Government of India.

SIR,

I am directed by the Right Honorable the Governor in Council to forward five copies of an Extract from the Minutes of Consultation, dated the 14th August last, No. 951, containing the views of Government with respect to a General Revenue Survey and Settlement of the Provinces of the Madras Presidency, as well as of the several papers recorded in that Consultation; and to request that you will submit the same for the favorable consideration and orders of his Honor the President in Council.

2. I am directed to add that as the Extract now forwarded is itself a complete and connected exposition of the whole subject, the Government have thought it unnecessary that any particulars should be entered into in this letter, and as the papers are very voluminous, it has been thought better to submit them in print for the greater convenience of the Members of the Government of India.

I have the honor to be,
Sir,
Your most obedient Servant,
J. D. BOURDILLON,
Secretary to Government.

Revenue Department.

No. 951.

Extract from the Minutes of Consultation, under date the 14th August, 1855.

Read again the following Papers.

From Mr. W. Elliot, 3rd Member of the Board of Revenue, dated 18th December 1845, and recorded in Dy. to Consultation 10th March 1846.

Extract from the Proceedings of the Board of Revenue, dated 26th March, and recorded in Consultation 19th May 1846.

Read also the following Papers.

Minutes by the Most Noble the President.	*(Here enter 12th January* 1848.)
Do. by the Hon. Mr. Thomas.	*(Here enter 11th February* „)
Do. by the Hon. Mr. Dickinson.	*(Here enter 23d* „ „)
Do. by the Hon. Mr. D. Eliott.	*(Here enter 1st November* 1852.)
Do. by the Hon. Mr. Thomas.	*(Here enter 26th August* 1854.)
Do. by the Right Hon the President.	*(Here enter 26th October* „)
Do. by His Excellency the Commander-in-Chief.	*(Here enter 10th January* 1855.)
Do. by the Hon Sir H. Montgomery, Bart.	*(Here enter 12th May* „)
Do. by the Hon. Mr. W. Elliot.	*(Here enter 8th June* „)
Do. by the Right Hon. the President.	*(Here enter 15th* „ „)

Para. 1. The papers above quoted discuss the subject of a general Revenue Survey and Settlement for this Presidency; and the Government now proceed to record their views upon it, in order to the early adoption of the necessary practical measures. The subject has been long before the Government; and their records contain a number of valuable and interesting minutes in connection with it, recorded during the Governments of the Marquis of Tweeddale and Sir Henry Pottinger.

2. It appears superfluous to enter into any lengthened argument in this place to prove the necessity of a Revenue Survey of the Madras Provinces: it will be sufficient to allude briefly to some of the leading facts of the case. The necessity of accurate measurements of the land and of a more or less exact classification of soils, as the only right basis of a land Revenue settlement, has been universally admitted; and this truth has been practically acted on in every one of the older divisions

of the British possessions in India, except Madras. In this Presidency alone, though no extensive portion of it, except Kurnool, has been under direct British administration for less than half a century, there has hitherto been no regular survey. In some districts attempts were made in the years immediately succeeding the British assumption to establish something like a Register of lands, and fixed rates of assessment, founded on actual measurement and valuation. But these measures were in every case carried out in haste, with imperfect Agency, and in many respects in a very defective manner. The surveyors, so called, were wholly ignorant of any correct methods of measuring, and were under no effectual control ; there were no Maps, either field, village or talook, and no permanent boundaries ; and even the records of the surveys have been imperfectly preserved. Hence, even in those Districts where the work was the least imperfect, as in the Ceded Districts, it is now admitted that few of the advantages of a really effective survey have been secured.

3. But even these defective and imperfect surveys extended to only a few Districts; and there are many even at the present day, wherein the land Revenue demand is based merely on the unchecked statement of the Curnum, who thus has vast opportunity both of making exaction on the Ryots, and in collusion with them of defrauding the Government. To quote a few instances ; in the District of Canara it is notorious that during the last sixty years a great extent of waste and forest land has been reclaimed, which is justly liable to pay Revenue to Government, but on which there is now no means, in the absence of a survey, to enforce that right. In Nellore again, the Land Revenue arrangements are in a state of the utmost confusion. The settlements of the first Collector at the beginning of the century were based on no certain data ; and they have been so tampered with since, that it is impossible at the present day to say to what class any given piece of land belongs, or what is the proper demand upon it ; the only thing certain is that very numerous and extensive frauds have been committed and are now in operation, which only a survey can correct. In the Districts of Rajahmundry and Masulipatam both of which are in process of being brought under the influence of extensive systems of irrigation, there is no accurate information as to either the extent or the productive power of the soil ; the assessments are extremely unequal, and in great confusion, while it is certain that frauds are perpetrated with im-

punity ; and the absence of information throws great difficulties in the way of levying a water tax for the irrigation supplied.

4. Other Districts might be cited, but the foregoing may suffice. The absence of accurate information as to the extent and the fair liabilities of the land has the most pernicious results. Not only does it operate injuriously on the Public Revenue, but it becomes a means by which the poorer and less influential classes are made to suffer for the benefit of the wealthy; and as respects all, both rich and poor, it has the injurious effect of rendering their property uncertain, of placing them in dependence on grasping and unscrupulous men, and of diverting them from the pursuits of honest industry, to watch over their interests at the Cutcherry, or make favor for themselves with the Tahsildar.

5. An accurate survey and careful settlement of the Land Revenue will remove these evils. Each man's payment will be certain; as a general rule there will be no remissions to be intrigued for or purchased; and thus the scope for cringing and bribing on the one part, and of corruption on the other, will be very greatly diminished, and there is no doubt that under such a system a larger revenue may be obtained than at present, with less inconvenience to the people. Not only will the greater proportion of the payments now made to the Government Officers be saved to the Ryot; but by an equal distribution of taxation those who now pay exorbitantly will be relieved from such extra exaction, and the burden will be laid on those who now unfairly evade it. Nor is this all, it is morally certain that with a moderate and fixed assessment, the occupation of land will rapidly increase. At present, cultivation is undoubtedly repressed by the heavy burdens on the land direct and indirect; but when these are lightened, not only will the properly agricultural classes extend their holdings, but numbers of the trading classes will apply their acquisitions to agriculture.

6. Lastly, it must not be omitted that at the present time the Government is enormously defrauded in the matter of Enams, or rent free holdings. It is remarkable that up to the present time there has never been any thing like a general register of Enams in this Presidency. In 1802 it was specially provided that all Enams should be registered,* and the title deeds produced; but from various causes, of which a principal one undoubtedly is the absence of any sufficient agen-

* Regulation XXXI of 1802, Sec. XV.

cy, this important and necessary provision has never been acted on. It is notorious that in every district Enams to a large amount are held without any valid title whatever; that during the period of confusion which immediately preceded the British assumption of the Government in Southern India, lands more or less extensive in the several districts, but certainly to a great extent in the aggregate, were fraudulently appropriated by the village and other officers, and have continued to be held by them only from the absence of proper enquiry.

7. It is not surprising that this should be the case in those districts where there has never been any attempt at a survey; that for exmple, the Collector of Ganjam should declare himself quite ignorant of the extent of Enam in his district, and unable to furnish any account of it whatever; or that in Rajahmundary and Masulipatam the Collectors should declare the statements which they send in to be unworthy of trust. But even in districts which have been subjected to the species of survey and settlement above described, as effected early in the century, although the extent held as Enam is more accurately known, there has never been any general attempt to verify titles, and it is certain that to a great extent they are invalid. Thus in the single district of Bellary, the lands held whoully or partially free amount to the enormous extent of 1,562,322 acres bearing an annual assessment of above twenty lacks of Rupees; and in Cuddapah the Enam is 1,051,509 acres bearing an assessment of above twenty one lacks of Rupees. It is notorious that a very large proportion of these enormous rent-free holdings stand on no good title whatever; this was avowed by Colonel Munro at the time of his survey, and an extract from his Report to that effect is given in the margin;* yet they have never been interfered with. The general survey will be the fit time for instituting an investigation also into the tenures of rent-free land; and if it is undertaken in a fair spirit and with proper consideration for the presump-

* "The enams of Potails and Curnums amount to 64,701,138 acres, of which the estimated rent is Star Pagodas 3,02,587-21-33, about four-fifths of the whole are cultivated. These enams are in many villages thirty or forty per cent. of the revenue, but in others not more than two or three per cent. In general all above five per cent. may be regarded as unauthorized. The frequent changes of Government and the loss or rather concealment of accounts have, during a long course of years, facilitated the fraudulent extension of these enams, at the expense of the Sirkar lands. Many additions have in this manner been made to them under the Company's Government, and even at the moment of the survey, as it was feared that no opportunity might afterwards offer for such practices. In some cases, a portion of these extra enams arises from grants for building small forts or digging wells for public use. In others, they pay a quit rent, but they ought all to be examined hereafter, and be subject, where excessive, to resumption or assessment."

tive interest which has grown out of a permissive enjoyment of above half a century, it will not be objected to ; especially when accompanied as it well may be by a reduction of the rates of land Assessment generally.

8. Such is the necessity and such are the main objects of a survey ; the Government will now briefly record their opinion on some of the leading points of the operations ; and will then note their probable cost. First as to the survey ; the Government are decidedly of opinion that the Revenue survey should be connected by minor triangulations with the Grand Trigonometrical survey, by which greater accuracy will be atttained, and the work will be made more permanent. As to its more immediate objects, what is required is a survey for Revenue purposes, not a topographical survey. Its main design should be to show all the principal variations in the surface of the soil, as whether Hill, Jungle, Roads, Channels, Tanks, Topes, Houses, cultivated and cultivable land, and also to exhibit accurately the sizes of fields in the cultivated and cultivable land. For a system of Ryotwar field settlements, the sizes of fields require to be accurately determined. The Government are of opinion that this should be done by some one of the English methods of surveying, as in Bombay, and as now being done by Captain Priestley in South Arcot, and not in the inaccurate Native method.

9. As to the size of fields, it is not necessary that the minute subdivisions prevailing in many Villages in the irrigated lands, often less than a quarter or even one-eighth of an acre, should be separately surveyed. For the purposes of the survey a number of these very small fields may be clubbed into one field, so as to form a convenient plot. There is no doubt that originally the fields were much larger than at present ; and they have been divided and subdivided with the partition of property, under the prevailing practice (which has arisen out of the jealousy and distrust on the part of co-sharers, of each other, and of the arbitrators) of dividing every separate field composing the property to be shared. No doubt it would often be practicable to revert in the survey to the original field. The proposal by the Board of Revenue in para. 25 of their letter of the 27th February 1854, appears judicious, viz. that fields in the survey shall not generally be smaller than one acre of irrigated and two acres of unirrigated land ; and that minor subdivisions shall be shewn by dotted lines according to the village

accounts. Very near the village, where land is valuable and is held in very small plots, it may be proper to relax this rule. In Bombay, the smallest fields allowed were much larger, none being permitted under ten acres; and this was not only a detail of the survey, but a part of the revenue system, and if a field were held in partnership, and one of the co-partners died or gave up his part, the other co-partner must take it, or abandon his part also, unless he could find some one to take the vacant share. Under this Presidency, where land is almost invariably regarded as a property, it would be impossible to enforce such a rule, and the attempt would lead to great discontent, and possibly to popular outbreaks. The rule also seems unwise, as tending directly to check the outlay of capital in the improvement of land.

10. The survey should extend to Enam lands as well as to Government lands; and, as already noticed, the occasion should be taken to investigate the titles of Enams, as well as their actual extent. The detailed survey need extend only to the cultivable land, including all ever actually cultivated, with such other land as may seem likely to be brought under cultivation within a few years. For it must be remembered that with the moderate and certain assessment which it is proposed shall follow the survey, it is morally certain that a great extension of cultivation will take place. The rest of the area of the village, viz. the jungle and unreclaimed waste generally, need not be surveyed in detail, but only in its chief features. And as further portions of it shall successively be brought under the plough from time to time, they may be surveyed by the survey establishment which hereafter should form a part of the permanent establishment of every district.

Lastly, it is essential that permanent boundary marks should be established; and that field maps, village maps and Talook maps, should be prepared. Without these two securities, the work would in a few years be lost.

11. After the survey comes the question of the assessment. The Government are of opinion that the Ryotwar or individual system, so long established in this Presidency, should be adhered to generally. They look upon that mode of settlement as decidedly in advance of settlements by villages, or other communities; and they believe that in the progress of society the latter must give way to individual holdings. But there are many points in which the actual Ryotwar system of the Madras Presidency may be much improved; and such improvement will fol-

low almost naturally under a moderate assessment, in place of the exorbitant rates now existing prevailing in many districts. These improvements will in great part consist in or spring from the almost entire cessation of the present numerous remissions. Under a moderate assessment, such as it is the desire of the Government to establish, there will be no necessity for remissions except under rare and special circumstances, and they should cease as a part of the annual and ordinary settlement.

12. Where annual settlements shall be in use, the terms of them will simply vary with the lands held by the Ryot, and his use or non-use of water from a Government source. No enquiry will be necessary as to the mode in which he may have cultivated his land or any of it, or whether he has cultivated it at all. There will be entire freedom to ryots to take or to give up land; but whatever they take they will be required to pay for till they formally relinquish it; and there will be a set time in the year for such relinquishment. But under a moderate and certain assessment such abandonment of land will be rare; because almost all land will then have some exchangeable value, and a ryot having occasion to diminish his holding will do it rather by transferring what he does not wish to retain to another party for a consideration, than by simply surrendering it to Government.

13. The first process in order to fixing an assessment is the classification of soils. An exact and scientifically accurate classification, distinguishing all the minute variations of composition, quality, and fertility of soil, is an operation of extreme difficulty in any country, even with all the aids that can be supplied by a high degree of scientific knowledge, accurate, and practised observation, and a trustworthy agency. In this country all these helps must in a great degree be wanting, and it is the more necessary that the Government should enter on the undertaking in a liberal spirit; and if so entered on, the difficulties will almost wholly disappear. It must be remembered that the right of the Government is not a rent; which consists of all the surplus produce, after paying the costs of cultivation and the profits of the agricultural stocks; but a land revenue only, which ought, if possible, to be so lightly assessed as to leave a surplus or rent to the occupier, whether he in fact let the land to others or retain it in his own hands. Nor is this simply an abstract question of right; it is certain that the course here advocated is that which will give the highest land Revenue,

because it holds out the greatest inducements to the extended occupation of the land. It must be remembered that this Presidency contains a vast extent of unoccupied land, liable to pay revenue if cultivated, but heretofore waste greatly in consequence of the exorbitant assessment fixed or liable to be fixed on it; and it is certain that this land will be increasingly brought under the plough if moderately assessed.

14. If the settlement be undertaken in this liberal and comprehensive spirit, the preliminary classification of the soil will not be difficult. Under a moderate assessment exact accuracy is immaterial, because the greatest difference of assessment which could be caused by the want of it, would not be such as to render the land an unprofitable holding, or to prevent its occupation, at the utmost it would only render such land somewhat less profitable than other land. It is the opinion of this Government therefore that the classes should be few, and based on real tangible differences of soil. They greatly approve the method followed in Bombay, in so far as it deals with simple facts and leaves but little to the discretion of the classifier; but it appears to them that the distinctions taken under that system are somewhat too fine-drawn, and that for practical purposes some of them might be omitted. It is undoubtedly right, as was done in Bombay, to consider carefully both the surface soil and the subsoil.

15. It is further the opinion of this Government that while noticing the actual physical characteristics of the soil, the classifier should also note, as nearly as he can, its productive power, stated in quantities of some one of the ordinary grain crops; paddy for irrigated land, and cumboo, cholum, or some other grain, for unirrigated. This will form the basis of the ultimate assessment; the estimate should be made on a carefully moderate scale, so as to allow for indifferent crops and bad seasons. In making this estimate, the classifier should consult Ryots and other persons of local experience, but should decide according to his own judgment. So important in the opinion of this Government is simplicity of classification, that they think it may well be considered whether it will not be practicable to abolish the distinctive classification of lands according as they are or are not capable of irrigation from a Government source, and to classify all land simply with reference to its soil, and its productiveness without irrigation; charging a water rate when Government water is used or is permanently available. This is the practice in the North West Provinces and has obvious advantages;

and though the universal practice here is different, yet, the change might be made without inconvenience on the occasion of a survey, if on the whole deemed expedient.

16. Next to the classification of soils will come the valuation of the land. The classification having regard simply to the physical quality and the productive power of the soil, the valuation takes in also the considerations of nearness to the village, and consequent facility of manuring, cultivating and guarding the crop, nearness to a road or a market, facilities of irrigation,* and other accidental rather than inherent circumstances, whether affecting the value of the crop or its quantity. This may most conveniently be effected, as in Bombay, by placing the field or the village, as the case may be, in a higher or lower class of assessment, according to the aggregate of such circumstances.

17. The classification of the soil, and the valuation of the land having been made, the next and final process will be to determine the assessment. This, as already said, should be moderate; but here the question comes in—What is a moderate assessment? The existing rates were based, generally speaking, on an assumed proportion of 50 per cent. of the gross produce in the case of irrigated land, and of 33 per cent. in that of unirrigated, after making certain deductions for village servants' allowances. These may be stated as the proportions generally; the actual proportions were in some cases exactly these, in some a little more, and in some a little less. The proportions taken in each District are generally ascertainable; but here comes in an element of uncertainty, because they were applied to the quantities of produce estimated by the classifiers; and it is very doubtful how far those estimates were correct, or were made *bonâ fide*. There seems reason to believe that they were often fraudulently low. Further, the quantity of produce thus fixed as the Government share was commuted into money at prices supposed to represent the average selling price at the time; but the mode of computing these prices varied much in the several Districts, and hence another element of inequality and uncertainty. In all Districts however, without exception, from causes on which it is unnecessary to expatiate or to speculate in this place, the price of grain has fallen very materially since the period of commutation, and thus, *pro tanto*, the assessment has in fact been raised. On the whole, probably,

* In the case of dry land, the actual payment for the use of Government water supplied, will be a distinct charge.

the proportion of the crop actually taken by Government at the present time, except where there have been recent reductions, is not less than 50 per cent. on irrigated and 35 per cent. on unirrigated land. In some Districts however, and in some parts of Districts, the assessment is certainly lighter than this; in others it is probably heavier.

18. Sir Thomas Munro was always of opinion that, in order to give the Ryot any proprietary interest in the soil, the share taken by the Government ought not to exceed one third of the gross produce. But in the Ceded Districts, where the assessments were lowered in order to bring them to this proportion, there are still loud complaints of over-assessment; and the state of those Districts, of Bellery in particular, is certainly not such as to indicate much wealth or comfort among the people. In the North Western Provinces, the rule was, never to take more than two thirds of the net produce accruing to the proprietor;* in other words, two thirds of the rent. This share of the net produce would bear various proportions to the gross produce, according to circumstances; on the whole it may perhaps be assumed that it would be equal to about 30 per cent. of the gross produce. And in an Essay on the settlement of the North Western Provinces, in the twelfth volume of the Calcutta Review, generally attributed to the late Mr. J. Thomason, it is stated, (page 442,) that this, or nearly this, is about the real proportion in the most fertile and best irrigated Districts. But it is added, (p. 443,) that in Mozuffernugger the revenue is only 20¼ per cent. of the gross produce; and in Bareilly about 22½ per cent.; and in Goruckpore not above 12 per cent. It must also be remembered that, under the settlement of the North Western Provinces, the whole of the waste land is given up by Government to the proprietor for the term of the settlement (thirty years), whereas under the Ryotwar system, all such land, as soon as brought under cultivation, will be liable to its full quota of tax, except so far as temporary exemption may be permitted to reimburse the immediate cost of reclaiming it.

19. On the whole, taking all the circumstances into consideration, the Governor in Council is of opinion that, in order to give the Ryot a real proprietary interest in the soil and to induce extended cultivation, 30 per cent. of the gross produce, computed, as provided above in para. 15, may be taken as the maximum of the Government demand. This maximum to be fixed as the actual demand under the

* Directions to Settlement Officers, para. 51.

most favorable circumstances, as explained above in para. 16, but to be liable to deduction, according to the lower degree, or to the absence of such advantages or any of them. Probably on the whole it may be assumed that, under this rule, the average share taken by Government would be about 25 per cent., or one fourth of the gross produce. This proportion is intended to be that taken for the general purposes of the State; besides which it may be proper to establish cesses for local objects, as in the North West Provinces; especially for the maintenance and improvement of the District Roads, and for education.

20. The proportion of the produce being determined, the next step is, to decide the principle on which it is to be converted into money; for it is very undesirable that Government should receive its revenue in kind. The present assessments throughout the Presidency are based on a permanent commutation of the assumed Governmant share, and the inconvenience of this arrangement has appeared in a marked degree. From whatever cause, the price of grain has fallen very greatly since the time when the commutation took place, and as a consequence the assessments are much heavier now than they were then. Price depends on various circumstances; it is affected by a change in the exchangeable value of the metal fixed as the standard of value, which in India is silver; it is affected by a change in the relation of demand and supply of the commodity itself, and that relation is modified by change in the extent either of demand or of supply, unless both change exactly together. To take the immediate case now in hand, that of a fall in the price of grain through a series of years, the demand may have diminished, or the supply may have increased; if the latter, it may be either from importation from abroad, or by better tillage, or by more extended cultivation; or on the other hand, the value of silver may have risen, compared with commodities generally. Again, though the price may have risen in the chief Town markets, yet the cause of this may be a saving in the cost of transport by improved roads or other communications, and to the grower the price may still be as good as before, or better. Or, lastly, all these elements of change may have concurred in producing the effect, in greater or less degrees.

21. All these considerations suggest themselves, yet on the whole it seems to the Government that the fairest course is to make the ryot's payment vary with the rateable money value of the standard

crop. It would be inexpedient, indeed, that this change should take place too frequently, or on the average of very short periods; and it is the opinion of the Governor in Council that the prices may properly be fixed every seven or every ten years, on the average of the same period; the prices so fixed to endure for a term of the same length. Under this system the assessment of each field would be fixed in terms of so much grain; in the case of irrigated land, (if that distinction is retained in the classification), paddy would be taken; and in that of dry, one or other of the chief dry grains. At the yearly settlement the total would be computed, and would then be converted into money at the commutation price of the year. *

22. In order to carry out such a system efficiently, it would be necessary to institute proper means for ascertaining the selling price of the various grains; and no plan seems so well suited to this end as the establishment of public markets. These markets should be established at the chief Towns throughout the country. Each one should be under a responsible and trustworthy clerk or superintendent, and the particulars of all sales should be duly registered. Independently of the use of such markets in ascertaining the price, they would also certainly be serviceable in promoting improvements in agriculture. On this subject of public markets the Government may quote the opinion of a late Governor, the Marquis of Tweeddale, a very competent judge in such matters, as recorded in his minute of the 12th January 1848.—

" Amongst the measures desirable for this end, the establishment " of public markets appears to me one of the most desirable and impor- " tant; for I do not see how any fair calculation can be made of the " rent in money, which a farmer or ryot is to pay as an equivalent for " the proportion of produce claimed by the landlord or by Government, " unless the price which the cultivator receives from the corn merchant " for his grain is publicly known and fairly recorded in open mar- " ket.

" A public market has also the greatest effect on agricultural im- " provement. Some time since I minutely examined the grain sold in " the extensive retail corn market of Conjeveram, and in most of the

* The tithe change in England is commuted in a different manner. The conversion price of every year is the average price of the preceding seven years. Thus the price is fixed anew every year, but as it is averaged over a considerable period, sudden and violent flcutuations do not occur. This plan might perhaps be beneficially adopted here.

" bags brought to me as samples there were as many seeds of weeds as " of the grain the merchant professed to sell. Out of thirty kinds " there were but few instances where I found it otherwise, except in " the grain from Bengal, which had passed through the hands of Euro- " pean Merchants, and this was as clean as grain sold at home.

" A public market under good regulation would correct this species " of fraud. Dealers would not purchase uncleaned grain; and cultiva- " tors soon learning that the disproportion of weight between the pick- " les of grain and the seed of weeds is easy and certain of detection will " take care to separate their corn into good samples.

" Such a system would encourage the employment of women and " children in preparing the grain for market; and if the seed was so " cleared from impurities before it was sown, the land would gradually " become freed from weeds, and an improved state of agriculture would " follow.

" Being of opinion therefore that a public grain market will be " found an important element in the adjustment of an equitable land " tax, and that it would otherwise be attended with beneficial results, I " would direct the Board of Revenue to consider whether such a market " might not be established in the chief town of every district, under " whatever regulations they might think most suitable; and the selling " prices, duly registered by the Clerk or Superintendent of the market, " be forwarded to Government for publication and distribution through- " out the Presidency.

" I have made much enquiry on this subject, and I have no doubt " that on a thorough investigation of the causes which lead the Natives " to make difficulties to the establishing of new market places, it will " be found that the same difficulties would present themselves in any " other country, and may be overcome here as elsewhere. Every con- " venience and accommodation required by all parties who attend a " market must be afforded, or as a matter of course in any country the " establishment of a new market will fail."

23. A question would arise how far it would be proper to generalize prices. In England there is but one official scale of prices for the whole country. In this country, where the means of transport are so immensely inferior, actual prices are not so certainly equalized. But even here it would probably be found that the variations on the average of a whole year are inconsiderable; and perhaps it whould not be found necessary to divide the country for this purpose. There is only one

other point to be noticed here, and that is the duration of the grain assessment. It appears to the Government undesirable that these assessments should be fixed in perpetuity, but they are of opinion that they should be declared unalterable for a period of fifty years.

24. One chief evil under Ryotwar settlements, both in this Presidency and in Bombay, has been the large proportion of small holdings and pauper Ryots. Under the new settlement in Bombay, an attempt has been made to check this evil by positive restrictions as to the minimum size of holdings, and similar measures have been proposed here. The Right Honorable the Governor in Council is of opinion, however, that this course of proceeding is not necessary, and that it is not the proper way of meeting the evil. In this Presidency there seem to have been two main causes of these minute holdings; one, the practice of equal partitions of property among heirs; and the other the facility with which men, without any capital or any interest in the soil, have been allowed to obtain land. And the effect of each of these causes has been aggravated by particular circumstances. As to the first, the high assessments, operating to limit cultivation, have made the holdings smaller than they would otherwise have been: and as to the second, the practice of granting remissions to those who could not pay, the issue of Tuccavy, and the anxiety of Revenue Officers to induce any one to take land, have increased the evil.

25. Now, as to the first of these operating causes, it occurs to remark that restriction on the size of holdings checks the evil complained of, only ostensibly and not in reality. If three or four brothers are allowed to divide their small property, they will do so, and the number of small holdings will be apparently increased; if they are not so permitted, they will nevertheless hold their land separately in shares, and the number of Ryots will not in reality be smaller or their holdings larger than in the other case. The difference will be that there will be less security for individual rights, than when all are separately recorded in the public accounts. And as to the aggravating circumstance of this cause; when the assessments are lightened and simplified, and lands now permanently waste are brought under cultivation, the holdings will naturally become speedily enlarged. The whole being greater, each part will be so also.

26. And as respects the other cause mentioned, it is the decided opinion of the Governor in Council that it will be better to trust to the

indirect operation of wholesome rules and an improved system, rather than to attempt to apply any direct remedy. Under light assessments land will bear a value, and there will be an eager demand for it. It will no longer be necessary either to force it on the unwilling, or to put up with bad tenants. The assessment will be light, indeed, but it will be invariable; except under very emergent circumstances, there will neither be advances nor any prospect of remissions or indulgence, and every defaulter without exception should be sold up at once. This system of a light but fixed demand, and of rigid enforcement, which is indubitably that of sound humanity and kindness not less than of good policy, will speedily lessen the number of pauper Ryots; who will fall back into their proper position of labourers; holding also perhaps a small patch of land from their master. But their condition will not be deteriorated; on the contrary the improved system of the Revenue will beneficially affect them also. For in the extended occupation of land, labour, which is now a drug, will become valuable; the rate of remuneration will rise, and the position of the labourers will be much bettered.

27. Further, the number of pauper Ryots has been greatly increased by admitting all parties whatever to occupy land on equal terms. If this practice has had any other ground than the desire to get land cultivated and increase the revenue, it has been based on some idea that all land belongs to the Government, and that no private parties can have any interest in land not actually in their occupation; and yet this is certainly an error: in every village there are individuals and classes exclusively entitled by the ancient custom of the country to the occupation of the soil, subject only to the payment of the Government tax. This tax has hitherto been so high in many parts of the country as greatly to limit the extent of land under occupation, and to render the Meerassidars in some degree indifferent to the intrusion of other parties on the waste; not wholly so however, and Meerassidars have had influence to keep much land out of the occupation of others, though not occupying it themselves. Under moderate assessment all this will be altered; land will become valuable, the rightful holders will occupy it themselves, subletting it, or part of it, and will no longer quietly submit to its being given away to those who have no rightful interest in it. Thus, in this way also, the creation of pauper Ryots will be powerfully checked under moderate assessments; and, as already said, it appears far wiser to trust to the operation of an improved sys-

tem, rather than to enact positive restrictive rules, which would involve constant interference, and which, after all, could not be more than partially enforced.

28. The practice of yearly holdings has been alluded to above: it seems desirable to adopt measures to introduce a more permanent occupancy. Under the present system, a Ryot is held to be entitled to retain his land so long as he pays the demand on it. The Government cannot oust him to give the land to another; but he is free to throw up the land whenever he pleases. Practically, under this system many fields are held permanently, although the ostensible title is only the annual puttah. It seems desirable that the ostensible and the real title should be made to agree. The advantages of this to both the Government and the Ryot would be very great; the trouble and expense of the annual settlement would be saved to the Government, while the Ryot also would be saved the inconvenience of going to the settlement, as well as all the interference which it causes in his private affairs, the anxiety lest the village or Talook officers should lay some demand on him and put him to the trouble of getting it removed, with the chance of failure, and the fees and payments involved.

29. It is probable that, in fact, the Ryot would gain much more by the change than the Government. Yet as the Ryots will incur some risk, of which, from their general deficiency of capital, and from having been hitherto accustomed and trained up to lean so entirely on the Circar; they are much afraid, and will give up some apparent advantages, they will need some inducement to agree to such terms. But it will be well worth while to Government to give such encouragement. This may be done by compounding for a fixed annual payment either for a term of years or otherwise; a composition for a fixed term of years will in fact be a lease. The composition will be regulated by certain fixed rules as to proportionate deductions for waste, for fallow, for bad seasons &c.; and the privilege of making such a composition will of course be restricted to holdings of some considerable size. Further, in some parts of the Country where the ancient system of holding the land and paying the Revenue in certain shares, has retained its place in spite of the nominal Ryotwar settlements annually made, that institution may be recognized, with the full consent of the meerasidars, and village rents may be made for terms of years: thus again getting rid of the constant interference of the Talook officers in the concerns of individual Ryots:

3

all such settlements as have here been spoken of, ought however to be based on a detailed survey and valuation of the land.

30. In this Presidency where so large a proportion of the surface of the Country is utterly unreclaimed, a Revenue Survey and Assessment, as already observed, need not extend to the whole area. These operations should include all land usually cultivated, and all land that ever has been cultivated within memory or according to the village accounts. They should also extend to such land not included in the foregoing classes, as may seem likely to be brought under the plough in the extension of cultivation consequent on lighter assessments and a simpler and less annoying Revenue system. But it seems not only unnecessary but undesirable that they should extend to the jungle and the utterly unreclaimed waste. To include all this would add greatly to the cost, while it could not be either surveyed or assessed in a satisfactory manner. Much of the jungle could not be surveyed at all with any accuracy in its present condition, and could not be laid out in fields. The assessment too could not be made with fairness; because the present value of such land would be far from representing its value hereafter, when contiguous land shall be reclaimed and cultivated, and when roads and markets shall exist in the neighbourhood. Such lands therefore will be left unsurveyed in detail, only their total area being determined; and as henceforward every district must possess a small survey establishment, the survey may be made from time to time, as successive portions of such lands are cleared and cultivated.

31. It is now necessary to consider how the measures above recommended would affect the Revenue. The present Revenue from Ryotwar Districts and parts of Districts amounts to about 317 lacks of Rupees. It has been stated above that the present actual assessment probably takes not less than 50 per cent of the produce of irrigated lands, and 35 of unirrigated; speaking in both cases of land employed in the ordinary manner of each kind, and omitting the effect of private improvements, and of special cultivation. Such being the case, it is obvious that to reduce the demand to 25 per cent of the ordinary produce, would, other things remaining the same, cause a very material loss of Revenue. But it is to be observed, in the first place, that the present assessments are, as already said, much higher than they were originally, in consequence of a material fall in the price of the staple agricultural products; that they are admitted to be excessively heavy;

that the necessity of reducing them has been acknowledged; and that in several Districts they are already in course of reduction. Second: It is certain that the burden of the existing assessment has actually operated to keep much land out of cultivation and so to depress the Revenue. It is a striking fact that during the thirty-four years that have elapsed since the final adoption of the existing Ryotwar settlements, though population has largely increased, and the country has enjoyed uninterrupted peace, there has been scarcely any increase in the land Revenue; showing how slight an extension of cultivation has taken place.

32. On the other hand many circumstances lead to the conviction that a reduction of the assessment would be speedily followed by great extension of occupation of land.

First, there is the general fact that less than one fifth of the whole area of this Presidency is cultivated. The total extent of the Ryotwar parts of the Country is above seventy-seven millions of acres, of which the cultivation of Government land may be computed at 14,670,000 acres; to this 20 per cent may be added for Enam cultivation, making a total of 17,500,000 acres, and deducting one third of the remainder for mountains, tanks, roads, &c., there remains the enormous extent of forty millions of acres probably available for cultivation, being nearly three times the present cultivation of Government land.

Even of the land actually fit for cultivation the extent now waste is very large. The total extent of Government land entered in accounts as "arable," is 32,170,000 acres; of this no more than 14½ million acres, as above seen, is cultivated, including Enams, leaving nearly 18 million acres waste. There is no room for doubt that an instant increase of cultivation would follow reductions of the Government tax.

33. Further: It is certain that the high assessments, and the absence of accurate accounts, give occasion to very extensive fraud in the concealment of cultivation. Occasionally instances of this are brought to light on a large scale so as to prove its existence, and it is well known to all Revenue Officers, that it exists largely but is concealed through the purchsed connivance of the Subordinate officials. With reduced assessments there would be less of this fraudulent evasion, because there would be less inducement to pay for such connivance; and with an accurate survey, and clear and simple accounts, such fraud would become difficult and dangerous.

34. Again, there are the Enams: this subject was touched on at the beginning of this paper; it is not intended to enter into it at large here: it must be treated of seperately, but it may be briefly adverted to as one source from which to replace the immediate loss of Revenue by the proposed measures. The extent of free or enam holdings is extremely great: in some Districts they have not even been measured, and no where has there been any systematic investigation of their titles. It is well known, that in a very large proportion of cases no good title could be shown; many being mere usurpations. After the long possession which has been tacitly permitted, it would be only fair to deal liberally with these cases and to forbear to resume immediately; the proceedings should rather be of the nature of those at Bombay, under Act XI of 1852. Thus the *immediate* recovery of Revenue from this source would not be great, but ultimately it would be very considerable.

35. There seems no room for doubt that with a vast extent of unoccupied land, with a peaceable and industrious population, scantily fed and scantily employed to the extent of being led to cross the sea in search of employment, though peculiarly averse to leaving home; with roads and other means of communication being every year improved and extended; under all these circumstances, it seems clear that such a reduction of Assessment as would make agriculture profitable, would speedily be followed by a vast extension of cultivation. To these expectations are to be added the more partial causes which will make it practicable to enforce the fair claims of the Revenue on extensive tracts now evading them; and lastly, it must be noticed that the measures proposed must of necessity occupy a very considerable length of time. It can hardly be expected that the survey and settlement of this extensive Presidency can be accomplished in less than fifteen or twenty years; and thus only one fifteenth or one twentieth of the Revenue will have to be dealt with in each year, and there will be full time for the restorative agencies called into existence by the new measures to come into operation. On the whole, considering the present depressed condition of this Presidency, it seems fair to anticipate with confidence that the result of these measures, instead of a falling off, will be an accession to the Revenue, while, as respects the payers and the Public, the gain will be enormous, the Revenue will be derived from resources double or treble those upon which it is levied now; and will be paid with corresponding ease and absence of privation.

36. It remains to consider the agency proper for effecting the survey and assessment, and the cost of both operations. As to the former, and first of the survey : the Government have no hesitation in declaring their conviction that it will be the best, and in the end the cheapest plan to make use of the most efficient means, and to carry on the proceedings on a large scale. Not only would an imperfect and untrustworthy survey, the result of ill instructed or dishonest Agents, miss great part of the advantages aimed at in a survey ; but it is the experience of the survey operations in all other parts of India, that they actually cost less money when carried on upon an extensive scale ; and this for the clear reason that the costly item of superintendence need not be increased in proportion to the minor operations. The Governor in Council proposes therefore, as the best and most economical course, to appoint a Surveyor General or Superintendent of the Survey as the head of the Department, and to have at least four Deputy Surveyor Generals, each in charge of a separate geographical division of the operations.

37. As respects however both the proper number of these Deputies, with reference to the control of the Surveyor General, the strength of their establishments, and the salaries of those establishments, His Lordship would wish to be guided in a great degree by the experience of the surveys of Upper India. But for the purposes of the present competation he will suppose that there are four Deputies, each with an establishment of the strength granted by the Government of India* for Captain Priestley's operations in South Arcot, amounting to Rupees 32,610 annually, independently of that Officer's own salary.

The Surveyor General should be an Officer of scientific acquirements, and the Governor in Council proposes to fix his salary at 1,000

* 2 European Assistants,..................	400	0	0
9 Surveyors and Deputy Surveyors,............	390	0	0
30 Survey Ameens,........................	562	8	0
30 Ameen Gomastahs,......................	300	0	0
9 Writers, Draftsmen and Computers,.......	195	0	0
126 Measurers,.............................	528	0	0
21 Duffadars and Peons,....................	117	0	0
Travelling allowance,.....................	225	0	0
Contingent charges,.......................	37	8	0
Total Monthly......	2,755	0	0
Total for 12 Months...	33,060	0	0
Deduct 2 Months Batta...	450	0	0
Net Amount...	32,610	0	0

Rupees a month, in addition to the ordinary pay and allowances of his rank; and he will require an establishment costing probably 600 Rupees monthly. Thus the total yearly cost of the survey operations will be Rs. 1,80,000 as shewn in the margin.*

38. With regard to the whole cost of the survey, it was computed that the party sanctioned for South Arcot would survey 720 square Miles of fields in a year; or including waste and porumboke, 800 square miles. Perhaps this estimate was too large, considering the small fields of this Presidency, and 700 square miles may be taken as the work of a Deputy Surveyor General's party; thus the total work of the four parties in a year will be 2,800 square miles at a total cost of 1,80,000 Rs.; or about 64 Rs. per square mile. The total area of this Presidency is computed at 1,38,000 square miles; but the detailed survey of this whole extent is not contemplated. The total cultivation in the Government Talooks amounts to about† fifteen million acres; and the whole extent to be surveyed under the rule stated above in paras. 8 to 10 will probably not exceed double this, or thirty million acres. To this must be added the Enam; which, including waste, is not less, so for as can be judged from the existing returns, than eight million acres. Thus the whole area to be subjected to the proposed operation will be thirty-eight million acres, or about 60,000 square miles. At the rate above given, viz., at 2,800 square miles a year, this would occupy twenty two years, and cost Rupees 38,40,000.

39. With respect to the assessement and settlement, including the classification and valuation of the land, the Governor in Council is of opinion that these important operations should be entrusted to a different agency. In other parts of India it appears to have been established that the settlement cannot be safely entrusted to the ordinary district authorities, and in this conclusion His Lordship in Council entirely concurs. These operations require peculiar aptitude, as well as constant attention; and it would neither be safe to take the Collector, for the time being, of each district, without reference to his personal

* Surveyor General,......................	1,000
Establishment,.........	600
Four Deputy Surveyors General,...	2,500
Their Establishments,.................	10,900
Total Monthly...	15,000
Total Yearly...	1,80,000

† See para 32.

qualities, nor would it be possible, with all his other engrossing avocations, that the Collector could give sufficient time to this extra work. On the other hand it does not appear expedient to the Governor in Council to invest the officer conducting the survey with the management of the assessment also ; the qualities required for the two duties are very different, and whatever individual exceptions there may have been, it does not appear by any means consequential that an officer well qualified for the former should have any fitness for the latter. The delicate and complicated operations of the assessment, not less than those of the survey, require special preparation and training as well as natural ability; and it is not often that this previous training in both capacities will be found in the same individual.

40. On the foregoing considerations it appears proper to the Governor in council to constitute a Superintendent of Settlement, who should be a Revenue Officer of some experience, to be aided by Deputies, to work under his orders, in the actual operations necessary to fixing the assessment.and settlement, and who should be provided with adequate establishment. It would probably be found expedient to have a Deputy Superintendent of settlement following each Deputy Surveyor General. To avoid the inconvenience of frequent changes of incumbency, the salary of the Superintendent of Settlement should be not less than that of a Member of the Board of Revenue. This Governmet have recently advocated the addition of a Fourth member to the Board; and if this proposal is acceded to, it will be practicable to nominate one of the members to the exclusive duty of superintending the settlement, relieving him from other duties. It does not appear expedient to this Government that the task of superintendence should be laid upon the Board generally. The salary of the Deputy Superintendents might be about 1,000 Rs. a month and they would also require some establishment.

41. It would be necessary that the Superintendent of the Settlement should be vested with a general power of control over the survey ; to the extent of determining in what direction operations should be prosecuted, but not of interfering in the mode of working, or in other professional or departmental details. Referring also to what has been said above, (paras. 6 and 7) as to the necessity of an investigation into the titles of Enams, it may here be remarked that it is the intention of the Governor in Council that the Superintendent of Settlements should

have the control of those enquiries. In the districts first selected for survey the settlement Officers under his orders would conduct that investigation conjointly with their more immediate duties; while in other districts Officers should be specially appointed to that duty, as in Bombay. The Governor in Council proposes however to bring forward the subject of Enams in a separate minute.

42. In the absence of definite information, it is not easy to judge what quantity of work would be done in a given time by the settlement establishments above sketched out, or, consequently, what would be the cost of their work per square mile, or on the whole. It is seen however that in the N. W. Provinces the cost of the settlement operations amounted to a small fraction above 7 Rupees per hundred acres on the total area of the territory; the cost on the area actually settled cannot be ascertained, but in the N. W. Provinces, from the nature of the country, only a small proportion was excluded from the settlement. The total extent to be settled in this Presidency has been stated alone at 38 million acres,* and supposing the cost to be as much as ten Rupees per hundred acres, the total will be 3,800,000 Rupees. The cost of the survey has already been computed at Rupees 3,840,000; and thus the total of survey and assessment united may be taken at Rupees 7,640,000.

43. This is a large sum; but it must be remembered that it will be spread pretty equally over a period of fifteen or twenty years; and that so distributed the yearly charge will amount to no more than from one to one and a half per cent on the annual revenue, which including jody or quit rent on certain Enams, may be taken at 320 lacks. The Right Honorable the Governor in Council does not hesitate to declare his conviction that the charge ought to be incurred; that the benefit of a regular survey and of an assessment on good data and on fixed principles will fully repay it, and that in various ways, as already enumerated, the actual cost to Government will be speedily replaced. He cannot but record his belief that the provinces composing this Government would now have been in a very different and far more prosperous condition if these operations had been undertaken when first their necessity came to be generally acknowledged twelve or fifteen years ago. And he would deeply regret if any further delay were permitted to intervene in entering on a work which has been accomplished, or is in course of execution, in all the other divisions of the British Indian Empire; which is univer-

* Para. 38.

sally admitted to be urgently required here; and which is indeed absolutely necessary wherever a land tax constitutes the chief part of the Public Revenue, because it affords the only sound data for judging of the value of the land.

44. The Government resolve to submit the foregoing proceedings, together with the Minutes and other papers to which they refer, to the Government of India, for their orders. While earnestly commending to the early and favourable attention of that authority the propositions above sketched out as to the course of proceeding to be followed, they solicit assistance and advice as to the details of the establishments, both for the survey and for the settlement. As regards the former, this Government propose four separate Deputy Surveyors General at least, intending that one of them shall continue the work in South Arcot, and that the other three shall commence operations simultaneously in Nellore, Rajahmundry and Masulipatam. But it may be that a Surveyor General will be able to control effectively more than four such surveys; and in that case, it will be good economy to increase the number. The proper strength of the establishment of each Deputy Surveyor General also requires to be considered. Again, as regards the settlement; this Government are anxious to profit by the experience of the similar operations in the North Western Provinces, but they have not been able to obtain any very definite information respecting them; and they request the Government of India to furnish them with information as to the salaries, and the establishments of the Settlement Officers, as well as with a sketch of their duties.

45. When favoured with this information, as well as with the views of the Supreme Government on the general propositions submitted, this Government will submit for sanction more detailed statements of the establishments required; but they would remark that some considerable time must necessarily elapse before those establishments can be completed because it will be necessary to train men specially for the subordinate duties.

The Government resolve also to submit a copy of this Minute for the information of the Most Noble the Governor General, and also to report the present proceedings and the papers connected with them, for the information and approval of the Honornble Court of Directors.

(True Extract.)

J. D. BOURDILLON,

Secretary to Government.

GUNTOOR COMMISSIONER'S OFFICE:
December 1845.

From
WALTER ELLIOT, Esq.,
3d Member of the Board of Revenue.

To
J. F. THOMAS, Esq.,
Chief Secretary to Government,
FORT ST. GEORGE.

SIR,

I have the honor to transmit herewith a Report on the Survey and Settlement of the Guntoor Tannah, a division of the Vasereddy Estate, in conformity with the 8th and 9th paras. of my instructions.

I have the honor to be,
Sir,
Your most obedient servant,
WALTER ELLIOT,
3d Member of the Board of Revenue.

MADRAS, 18*th December* 1845.

REPORT OF THE SURVEY AND ASSESSMENT OF THE GUNTOOR TANNAH, THE HAWELLEE TALOOK OF THE ZILLAH OF GUNTOOR.

The Zemindari Estates about to be surveyed, are comprised within the ancient Guntoor Circar, which forms a well defined tract, bounded on three sides, by the Kistna river, the Sea and the Eastern Ghats, separating it from Masulipatam, Palnad and Cuddapah. On the South the line dividing it from Nellore is broken and irregular, several villages of the one District being included within the frontier of the other, and *vice versa.*

2. The space within these limits is an extensive plain, from the centre of which rise the Condavid Hills, a granite range, extending about 12 miles, from South West to North East. Beyond its termination on the South West towards Rajapett, a few detached Hills appear to indicate a continuation of the ridge in the same direction, but the intervals between them are low, and the streams flowing from the westward take their courses through them. From the North East ex-

tremity of the range to the Kistna, the plain is considerably elevated and a series of rocky Hills again appear above it near Mungalgerry, extending to the banks of the river, opposite Bezwarah. Another spur elevates itself near Poonikul and pursues a more northerly course, terminating likewise at the Kistna not far from Amrawatty. The intermediate plain between them is studded with isolated hills. The minor ranges themselves are not continuous, but are broken here and there by openings, through one of which a cut for a new head to the Tungabhadra channel has lately been carried: To the South and East of the central range the plain slopes gradually to the sea and has the appearance of an extensive alluvial deposit, from the surface of which the Hills rise like so many islands. Traditions are current of the Kistna having once found a more southerly passage to the sea through the low line of country forming the channel of the Tungabhadra Nullah, and also of Rachoor and Rapully having formerly been near the shore. In proof of the former the deep rich soil of the villages, lying between the supposed former and actual present channel, is instanced. The latter opinion receives support from the marks of an ancient beach along the eastern road to Masulipatam between Chandale and Chinna Ganjam. The black cotton soil here gives place to a belt of sand from 8 to 10 miles in breadth, commencing with the dunes and elevated ridges generally found above high water mark, and thence sloping gradually to the present Coast. So remarkable are these indications that the drainage of the Country lodges against them and forms occasional swamps. This effect is very perceptible under the Bapetla Tank, the surplus water of which—arrested by the sand heaps—renders a considerable portion of valuable land unfit for cultivation. The slope of the plain from the base of the hills is at first rapid—the descent from Guntoor (situated on the skirts of the high ground North East of the Condavid range) to the Tungabhadra Nullah near Chagerlamoody being 60 feet or about 6 feet per mile, while from thence to the sea the fall does not amount to 20 feet in a distance of 25 miles, or less than one foot in a mile. The drainage therefore is uniformly towards the South East, except on the North West of the central Hills. A line dividing the heads of the streams that flow North and South, extends from this range across to Palnad with an elevation above the plain so trifling as to be hardly perceptible. The soil contains a great proportion of clay which likewise forms the subsoil, in consequence of which the moisture does not sink to

any depth, and in heavy rains the surplus water flows over the surface in the direction of the drainage, washing away the loose soil and sometimes increasing to dangerous floods.

3. This peculiar character of the soil exercises a corresponding influence on the system of agriculture. Neither the plough nor the roots of plants can penetrate so unyielding a medium. Ploughing therefore is confined to a slight disturbance of the surface, for which a single yoke of oxen is sufficient. In many parts of the mixed (Masub) and finest black lands it would prove very advantageous to work deeper with a larger plough and two or more pair of bullocks. But the practice is little followed. Even old waste is broken up with the common small plough. The great plough of the Ceded Districts drawn by eight yoke of oxen is unknown. Nor is it so much required; for the clayey subsoil is unfavorable to the growth of the obstinate Konda nutt grass, the deep seated roots of which are extirpated with such difficulty from the best cotton soils elsewhere. The district cowle namah therefore only allows a period of three years for reclaiming immemorial waste, taking one fourth of the assessment the first year, half the next, three fourths in the third year, and the full amount in the fourth.

4. The climate of the Circar is likewise remarkable. Situated nearly at the point where the South West Monsoon ceases and the North East begins, it partakes of the influence of both, without receiving a full share of either. The first rains come from the South West and fall in the latter part of June, but these are rarely more than a succession of showers. The heavy rains are much later and do not fall till July and August. The subsequent supplies from the North East Monsoon are occasional and irregular but do not cease altogether till December or January. During the rainy months the lighter clouds attracted by the Hills discharge themselves in frequent slight showers, which are wholly unfelt in the plains. By means of these the cultivation of the early (or Poonasa) crops is carried on in the red soils at the base of the Hills. They consist of bajra, raghee, kungonee, Indian corn, pulses, &c., but are of trifling amount, not exceeding above 7 per cent of the whole cultivation. The staple crops of jowaree and pyra, or mixed produce, amount to 84 per cent, and are much later being sown in July and August and reaped in December and the following months. They require much less rain and produce best in a scanty Monsoon. There is comparatively little wet* or garden produce: except for the

* Note. The wet lands are about 4 per cent of the whole. The Jareeb about 5.

Poonassa crops and in the wet lands, which are prepared in the hot weather, ploughing commences late. Contrary to the usual belief that the black soils do not require to be manured, those of Guntoor are frequently so improved either by spreading over them the mud and sweepings of the streets containing the refuse of the village, in addition to the ordinary manures, or by penning large flocks of sheep on them for a fortnight or three weeks before ploughing. But the latter custom is confined to spots destined to raise superior produce as chillies, tobacco &c. Nor are the same fields always selected for this purpose, but a sort of rotation of crops is observed, and a lighter kind of produce raised upon them in succeeding years. The same process is observed in the common dry farming, the staple produce of Juwaree being succeeded by one, or still better by two, of the lighter crops as castor oil plant, horse gram, &c.

5. The gradual slope of the plain from an elevated centre would seem to be favorable to the formation of reservoirs for purposes of irrigation. Few however exist, and these are of the most indifferent description. The wet cultivation, as already observed is small, not exceeding 4 per cent, and of this* a large proportion belongs to a single Tannah,† which has lately derived much advantage by channels conducted from the Kistna.‡ It would appear however from the great number of ruined and choked-up Tanks in all parts of the District, that the extent of irrigated land was greater formerly than at present. ||Captain Caldwell, who reported on this subject soon after the province came into our possession, considered it favorable for such works, and attributed the general state of decay in which he found them to the improvidence of the Zemindars. The supply of water generally is scanty, even for domestic purposes. Most of the Tanks are exhausted by the end of March, and the wells (where they exist) seldom last throughout the hot months. But in most parts of the black soil, the springs are brackish, and the construction of wells is useless, for the water obtained from them is undrinkable. There are no rivers of any size the largest stream is the Nullemooda, which forms the supplying channel of the Baputla Tank. The Gundelacumma passes through a small part of the Inneconda Tannah at the most southerly point of the District, without conferring any benefit on the cultivation. Forest and

* Report of Civil Engineer 2d Division, 24th July 1839.
† Baputla.
‡ Diary of Civil Engineer for June 1839.
|| From Captain Caldwell to the Board of Revenue, 23d June 1801.

Timber trees are almost unknown, and the few Topes planted near Villages, checked by the ungenial nature of the subsoil, exhibit only a stunted and sickly growth. As soon as the crops are off the ground, the aspect of the country becomes inexpressibly bare and dreary. The eye wanders over a boundless extent of black plain, unrelieved by signs of vegetation. Yet notwithstanding the absence of such apparent requisites for animal existence as water, shade and herbage, during a fourth part of the year, Guntoor is celebrated for its breed of cattle, which is exported in large numbers to all parts of the Dekhan.

6. These remarks, on the physical characters of the Circar, will help to elucidate many circumstances that demand attention in fixing a new assessment, particularly with reference to the classification of the lands and the fluctuations of the Revenue in former years. The remarkable conicidence between its Geographical position receiving little rain, and the nature of its soil requiring a less than ordinary share of moisture, explains the reason of its being greatly affected by vicissitudes in the regular course of the seasons. It shows why, though suffering from severe drought; it has flourished in times of comparative scarcity elsewhere, whilst on the other hand a plentiful monsoon, which has conferred abundance on the neighbouring Districts, has subjected it to failure and loss.

7. Although the necessity of a new assessment has been admitted on all hands, it may not be amiss, particularly with reference to the observations of the Board of Revenue in their Proceedings of the 16th June last,* to give a short outline of the revenue system hitherto in force, from which it will be seen how unsuited it is, whether in principle or in detail, to assist in the formation of a new settlement. The materials for this purpose are singularly deficient. No records of any antiquity are forthcoming, and the earliest information extant, rests only on the traditions of the Despondies and Village accountants. These all concur however in referring to former surveys and settlements by the different dynasties which have from time to time exercised supremacy in the Circar. Some of these measurements yet exist and account for the variety of standards found in the District.† But the rates of

* Para. 5-14.

† In illustration of this view a statement (A) of these is given in the appendix and marked together with an abstract of the information derived from an old Village record professing to relate to the Surveys of the former Government.

assessment have wholly perished. They probably subsisted to the time of the Mahommedan conquest about the end of the 16th Century. The subjugation of the Musalman kingdom of Golcondah, to which Guntoor was attached, by Aurungzebe in 1687 was followed by the introduction of a rent roll (the Kamil Beriz) which brought exaction to a climax. But the consolidation of the Mogul conquests having been checked by the rise of the Mahrattas, it is not probable that so large a revenue was ever actually collected. It was during this period, in the early part of the 18th century, when the paramount power was in abeyance, that the hereditary revenue officers of the Imperial exchequer, the ancestors of the present Zemindars, began to arrogate to themselves the right of appropriating the revenues of which they were merely the collectors. In 1724, the formation of the Soobah of the Dekhan into an independent state again established a preponderating authority. The most turbulent Zemindars were rooted out and destroyed, but others were created in their room, and the system of administrating the revenue through their hereditary agency still continued. In the vain attempt to attain to the Kamil standard, annual estimates were taken of the produce, the realization of which commuted to money was entrusted to the Zemindars. The Ryots, unable to meet a heavy demand, based on fallacious inspections of their crops, objected to pay in money, and their kists were therefore of necessity taken in kind. From this time we never hear of the revenue being realized otherwise than by a division of the crops. In this condition the district passed into our hands.

8. At the time of the permanent settlement, the Collector was instructed* to impress on the newly created proprietors the advantage of substituting a fixed money rent for the practice of sharing the produce. This led the Zemindars to introduce the present fixed (Muckhta) rates, but they did so only in the dry lands. They do not seem to have followed any certain plan, but contented themselves, for the most part, with fixing the demand on each Village and leaving the details to be settled by the inhabitants. Neither were these permanent. Not only have the original rates been changed, wholly or in part, from time to time, in particular Villages, but even where they remained unaltered in the accounts, discretionary settlements (chellanernayem) were often

* See Paras 37 at 41 of a draft of instructions to Mr. A. Scott by the Board of Revenue dated 25th December 1801, in a letter to Government of 1st January 1802.

made from year to year, without reference to them, for the sake of conciliating the Ryots.

9. In subdividing the assessment, the Ryots seem generally to have been guided by one of two plans. 1st. They classed the lands according to their supposed fertility with reference to the Village standard measure, and applied a graduated scale of money rates—or, 2ndly. They arranged the village standard measures according to what may be called compensation-measures and imposed one uniform money rate on the whole. Thus they fixed a sum of, say 20 Pagodas the coochal, as the village rate, and in the case of the best land, the extent was limited to the exact standard measure of the village, but they reckoned, say double the same area, as one compensation measure for the second class of land, three or more for the third, and so on, increasing the extent, in proportion to the inferiority of the soil, on the principle of quantity making up for quality. But we look in vain for a systematic development of either of these principles. The details vary in every village, and are characterised by one common feature only viz. that the inequalities are always found to be in favor of the leading Ryots and to the prejudice of the poorer ones. A few instances will exemplify the want of system and principle that pervades the whole.

1. There are 560 villages paying graduated rates on the standard or (kalari) koochal; one of these, Pedda Koorpad, a remarkably fine village containing between 7,000 and 8,000 acres, was originally divided into 6 classes, as follows :—

Class.	Extent. Koochaloo.	Rate. Pagodas.	Rate. Fs.
1	362	18	18
2	1	12	18
3	0¾	12	0
4	1	10	0
5	1	9	0
6	1¾	8	0
	369		

This at once shews the fallacious nature of the settlement. For it is absurd to suppose that there could be 7,500 acres of the first class land, and only 110 in the five others. In 1836, the Collector, under whose management the estate then was, remitted two Pagodas in the first class, abolished the five inferior classes, and threw all the land into one

And very shortly afterwards, having made over the property to the Zemindar, he added ⅛th of a coochal to each standard coochal as (Toogada) an inducement to the Ryots to cultivate, thus in fact establishing a uniform rate of 10¼ Pagodas or 41 Rupees the coochal of about 20½ acres throughout the village. I went carefully over all the lands and found them to consist of every variety of soil, black, red, and mixed. The Ryots themselves admitted that the best land, a fine wondoo,* in the bed of an old Tank, might pay 5 or 6 Rupees an acre, but this was in the possession of the Head Cummawar ryot, whilst there was much that ought not to have been taxed above 1 Rupee or even less,—yet the whole now pays 2 Rupees per acre. In another village named Wadlamoody, consisting of 68 coochaloo, or about 1,300 acres, the number of classes originally fixed in the dry lands was 54, the rates varying from 8 to 40 Pagodas per coochal, and in the Garden lands 16 at from 1½ Pagoda to 5½ Fanams per coonta, in all 70 rates. This arrangement continued nominally in force till the village came under attachment in 1833-4. In 1834-5 a discretionary amount was assessed by the Collector on each field; but in reality the revenue was received in kind. In 1842-3 the Zemindar reverted to the original rates in which he gave a remission of 25 per cent.; to which was afterwards added a further deduction of 8 Annas per Pagoda or 12½ per cent. more, at which rate the assessment is now levied.

2. The compensation (waradi or badi) coochaloo villages are 58 in number, each with a different rate varying from 2½ Pagodas to 40. The greatest number are found in the Mazamdari Estates of Suttanapilly and Chilkaloopaud, 38 out of the 159 Villages in which, are so settled. Oopulpad is an instance of the simplest form of this tenure :—

Class.	Calari kooch.		Badi kooch: at 30 Pagodas.	Deduction per cent.
1	1	=	1	0
2	1¼	=	1	20
3	1½	=	1	33
4	2	=	1	50
5	3	=	1	66
6	4	=	1	75
7	5	=	1	80
8	6	=	1	83

But in Wulloor there is first a general rate of compensation (Natsoo)

* See Para 15.

for all lands; then an additional one (Madapoo) for the high lying lands; then a second addition (Vasi) for pycaries; and another (Wandra) for Bramins equivalent to the Tyazgaree of other Districts. In this manner out of the 155 Calari or standard coochaloo comprising the village area, 85 go to make up the general compensation (Natsu); 12¾ (Madapoo) to the high lands; 1½ (Vasi) to pycaries; and 5¼ (Wandra) to Curnums and privileged classes, leaving only 50 compensation or Badi coochaloo assessed at 40 Pagodas each.

10. The number of different money rates under these two modes of settlement amounts to 450 in the four Estates.† The highest is 71 Pagodas (=284½ Rupees) per coochal, or about 9 Rupees an acre; the lowest is 1 1/16 Rupee per Coochal, or less than 2 Annas an acre. There are besides a number of Villages assessed at purely discretionary rates with the appropriate name of Nazar Muckhta ‡ and others in which the revenue is taken by a share of the crop.

11. The distribution of whole number of Villages in the four Estates is as follows :—

Settled on the Calari Coochal	560
" " Badi Coochal.	58
" " on Nazar Muckhta rates.	126
" " by Division of Crops.	134
Moturpha Pettahs.	4
Total Zemindary Villages...	882

The above particulars are given as they are found in the Revenue accounts. But they are little observed in practice. Through fraud or neglect, or partiality, or for purposes of conciliation, the extent of land actually held, is often found greatly to exceed the recorded measurement, and that, not as a general result, but in a greater or less degree with reference to particular individuals, some having more than the standard measure allows, while others hold double or treble the extent to which they are entitled. In some of the Villages of the Guntoor

† On Standard or Kalari Coochaloo...	357
On Compensation or Bady Coochaloo. ... ... —	58
On Jareeb Coontas...	128
	543
Deduct rates Common to two.	93
Remain.	450

‡ i. e. Assessed by the Eye or Glance.

Talook in which the same standard or a Coochal of $20\frac{1}{2}$ acres prevailed, the actual measurement gave for the average extent of the Coochal as enjoyed $19\frac{7}{40}$, $23\frac{21}{40}$, $24\frac{16}{40}$, $25\frac{24}{40}$, $29\frac{39}{40}$, (or almost 30) acres in each of 5 Villages respectively.

12. Besides these more immediate defects, the registry of land is extremely imperfect. The fields have neither names nor numbers. The extent of a Ryot's holding is entered in the gross as one, two, or more Coochaloo, though it may be composed of several parcels of land in different quarters of the Village, and thus it is in many cases difficult (impossible indeed, when the Ryot and Curnum combine) to discover the precise locality required. From this sketch, into which for the reason already stated, I have gone with greater minuteness than perhaps was required, I trust it has been shewn satisfactorily that no elements of any former settlement exist in a shape that will admit of their being engrafted on the present survey.

13. The personal labors of the Commissioner being restricted within the limits specified in the orders of Government of the 16th November 1844* which prescribe that it will be sufficient if he causes the survey and settlement to be made as an example in one or two Divisions or Talooks.† I selected the Guntoor Tannah as being most conveniently situated for the performance of this, in conjunction with my other duties. The Kurnool Survey having been completed, a party of 10 Surveyors was obtained by an application to the Commissioner. They were instructed in such particulars as the peculiarities of this District required and commenced surveying on the 1st April. The whole was completed on the 14th July. The rules for their guidance were submitted to Government with my letter to the Board of Revenue of the 24th May last. They will be found as required by my instructions to be in all essential points the same as those of the Ceded Districts. In addition to these the Surveyors were made to enter their measurements in books free from erasures and to annex a sketch of each field shewing the number of divisions (or taks) in which it was measured, and specifying all topographical features according to a prescribed form. These have been executed with tolerable accuracy in some cases, though not with equal success in all, but even where roughly drawn they illustrate the written description of the dimensions, boun-

* Extract from Minutes of Consultation 17th January 1845 para. 3.

† In the Guntoor Collectorate the Talooks are called Tannahs. The Tahsildars—Ameens. Many of the Revenue terms differ from those in use elsewhere.

daries, &c. It was in contemplation to have constructed Village Maps from these, but as the Surveyors work against time, according to the rules of the Ceded Districts, they cannot fairly be required to perform such extra labor, besides which the sketches being made without scale and without bearings, it would be no easy matter to fit them into each other. Two or three of the most intelligent Mootasuddies now employed in Chaybrole having become more expert, have however made the attempt, but they are still unfinished, and the Villages for which they are drawn do not come within the scope of this Report. The object of these additional precautions was to guard against frauds and subsequent falsifications of the accounts, a practice too prevalent in Guntoor. But even were it otherwise, it is highly desirable that a new registry of the lands should, as far as possible, be placed beyond the reach of alteration and doubt. In this respect the Village Maps afford an important guarantee to the accuracy of the accounts, and I consider the construction of them to be very desirable. But it is hopeless to expect that they can be prepared by the description of Surveyors now employed, as long as surveys continue to be carried on in the present imperfect fashion. The work of the Kurnool Surveyors did not exhibit the superiority over that of the Mootasuddies newly entertained in the District that might have been expected from their greater practice. Several of the latter displayed great aptitude for the employment, and if placed under proper instruction and superintendence, they would turn out first rate surveyors. Two Indo-British Surveyors lately employed in the Nellore Survey were placed under my orders. Neither of them arrived till after the greatest part of the work had been completed. This however was of the less consequence as I found them little qualified to assist me. Their knowledge is confined to the practical use of the plane table. They are unacquainted with the general principles of surveying and incompetent to give instructions to others. I was very desirous that they should train a party of Surveyors to measure with the cross-staff, but they were unable to do so.

14. The measurements of the Surveyors have been tested in the usual manner and have been found on the whole to be tolerably correct.

The first examination or that of the Native Azmayeshdar gave the following results :—

No. of Fields examined.	Extent in Goontahs by original measurement.	Extent in Goontahs by test measurement.	Goontahs in excess by test.	Goontahs less by test.	Net excess detected by test.	
105	60,044	59,502	1,416	874	$542=\frac{14}{16}$	per cent or 875

But as this only shews the total amount of mis-measurement the following Table has been prepared to exhibit the proportion of error in individual fields, within the allowed limits, in 4 degrees :—

No. of Fields examined.	Area of Ditto.	NUMBER OF FIELDS IN WHICH THE DIFFERENCE BETWEEN THE ORIGINAL AND TESTED MEASUREMENTS IS.				
		Not above 3 per cent.	Not above 6 per cent.	Not above 9 per cent.	Not above 12½ per cent	Above 12.
105	Acres. 1,501	63	22	10	5	5

The total number of cultivated fields measured being 2,070 or acres 18,919 : 11¼. A further test was applied by causing the two Deputy Assistant Surveyors from the Surveyor General's Department to measure a certain number of fields by means of the plane table, from which was obtained the following results :—

No. of Fields examined.	EXTENT IN ACRES BY		Acres found in Excess.	Acres found less.	Net Excess.
	Original measurement.	Plane Table.			
55	1,175	1,284	149	39	109=9 per cent.

Or arranging the error in degrees :

Number of Fields.	Area.	NUMBER OF FIELDS IN WHICH THE DIFFERENCE BETWEEN THE ORIGINAL AND TEST MEASUREMENT DID NOT EXCEED				Do. Do.
		3 per cent.	6 per cent.	9 per cent.	12 per cent.	exceeded 12 per cent.
55	1,284	10	13	13	6	13

The ratio of error detected by the second process, though large, is perhaps not greater than may be expected between a very rude and a very accurate process. The weather was very unfavorable for survey operations; being the hottest part of the year, in addition to which, the season was one of unusual intensity, so that almost all the Surveyors got ill, which caused them to resign their situations and leave the District.

15. The classification was commenced in May. The person employed as termdar had previously gained experience under Mr. Bayley, at Kurnool. Before undertaking the classification of the villages under report, an extensive examination of the soils of the district generally was made under my own superintendence. In the course of the scrutiny it was observed, that both the ryots and the termdar formed their estimate of the value of the land chiefly from the color of the surface and without reference to the influence of depth, position, or the accidental occurrence of natural defects. According to native ideas there are three principal divisions of soil: the black, the red, and the mixed; besides some minor ones. The last or the mixed lands, contrary to the usual opinion, are in Guntoor reckoned the most valuable, though the superior varieties of black are nearly equal to them. The finest mixed lands are near the Kistna. They bear the heaviest rates in the District and consist of a rich mould mixed with vegetable matter, sand, &c., varying in color from a very dark to a reddish brown, and breaking easily with a coarse grained fracture. They are not so tenacious or coherent as the black soil and are generally of greater depth, resting on granite or limestone rock in the neighbourhood of hills, or on intermediate beds of gravel or more rarely on clay in the vicinity of the black soils. Near the river they are mixed with alluvium, but the pure alluvium is reckoned among the black soils from which however it is distinguished by a particular name, that of *Wandoo*, or *Krishna Wandoo*. It has a very peculiar character, being firm and compact when dry, yet breaking easily with what Mineralogists would call a conchoidal fracture, like that of the common flint. But though its sharp edges and smooth surface give it an appearance of hardness it disolves immediately when moistened. It is then found to consist of finely comminuted and almost impalpable particles, free from admixture with foreign bodies. When moist, it is of various colors, from an Indigo black to yellowish-brown, and when first taken from the bed has a

purplish bloom which disappears as it dries. It is found on the banks and on the Islands of the Kistna and also near nullahs and in the beds of old tanks. The Ryots esteem it highly, and say that a coochal of it will yield 30 Pootties, which is double the product of the best black or mixed soil. The black land which is called Regur by the natives, and cotton soil by Europeans, constitutes by far the largest proportion of the District. It is supposed to be of volcanic origin and to be derived from the decomposition of the extensive basaltic formation of the Dekhan, through which a great part of the course of the Kistna lies.* This may account for its extraordinary fertility and for the fact that it suffers no exhaustion by continued cropping and does not require manure. But that of Guntoor is of an inferior quality, being much intermixed as already observed, with a stiff clay, which likewise invariably forms the subsoil at depths varying from 6 inches to 2 or 3 feet. This clay is black, unctuous and shining, deposited in thin horizontal layers, which break across with sharp jagged edges like a piece of slate. It is impervious to water, and therefore after heavy rain the superincumbent soil is converted into mud unfitted either for labor or vegetation; and the water instead of being absorbed runs off, carrying with it the loose soil, and whatever advantages the ryot has conferred on it by culture and manure. The natives reckon about six kinds of regur and the same number of musub soils founded on difference of color, the presence of stones, nodules of lime, earth-salts, &c. The red soils are produced by the degradation of the hills. They contain more or less gravel, sand, &c. according to their vicinity to the hills and streams. As the plain recedes they become mixed with vegetable matter and pass into the musub lands, or are lost in the prevailing regur. They generally rest on beds of gravel, kunkur, or granite. These are the least valuable lands and require manure and a plentiful supply of moisture. A fourth variety of soil called *padi* occurring in the neighbourhood of habitations and containing much animal and vegetable matter is likewise recognised. It is a whitish clayey earth, requiring much rain, but is reckoned very productive and is generally appropriated to the growth of dry garden produce. The native principles of classification go no further, and therefore, when applied to a settlement, they are found to be very unsatisfactory. The ryots are aware of this themselves, and when they come to class a field with reference to the assessment, they attend but little to its *color*, and are guided chiefly by their practical knowledge

* Dr. Voysey, Asiatic Researches, vol. XV. p. 126.

of its productive powers. The errors into which the classifiers of the Ceded Districts were led from this cause obliged Sir. T. Munro to change the instructions* to termdars soon after the beginning of the work, and to make them class and *assess* the land at the same time, so that the ryots might at once perceive the effect of classification in raising or lowering their own individual rents ; in other words oblige them to be guided by experience instead of theory. But the classification thus made rests merely on opinion. The registers exhibit only the arbitrary verdicts of the termdars and ryots, without shewing the means by which they arrived at the conclusion recorded by them.

16. The want of accurate data of classification was early felt in the progress of the Guntoor Survey, and several attempts were made to establish some general principles that might serve as a foundation for a systematic scale of soils. Dry lands can hardly under any circumstances yield more than 6 Rupees† or less than 4 Annas per acre. It might be supposed therefore that a few well marked classes would include all possible varieties within these limits. But this did not prove to be the case. It was found that no definition would embrace the numerous disturbing causes affecting the value of land, in other respects of the same quality. The conditions of the same field often vary materially within the space of a few feet , and to arrive at any thing like an accurate conclusion it would be necessary to assign a certain value to each variety, and then to strike an average of the whole. This demanded a far greater amount of experience and practical knowledge than was forthcoming. The attempt to form general classes was therefore abandoned for the old system of making the Villagers class their own lands,‡ but the assessors were required carefully to note all the peculiarities of each field in the term register, according to a prescribed form,§ so that any person examining a particular number at any future period could ascertain the data on which it had been so placed. This is a step at least, in the right direction. Even if it does not lead to a

* From Principal Collector, 26th July 1807. V Rep. p. 784.
† *i. e.* Rent.
‡ From Principal Collector Ceded Districts, 26th July 1807, para 4.
§ Such for instance as :

1. Depth of superficial soil in various parts of the field.
2. Nature of the subsoil.
3. Proportion of different kinds of soil.
4. Presence of foreign bodies and their proportions.
5. Relative site or position of the land.
6. Liability to overflow of water.
7. Average produce ascertained by enquiry compared with stubble, grain-ricks, or other indications.

more correct system, it furnishes a mode of detecting errors, whether arising from indolence or fraud on the part of the termdars.

17. The following was the process observed in the classification. The termdar assembling the ryots, explained to them the objects of the present undertaking. He impressed on them the necessity of the classes bearing the same relative value to each other, and of the same degree of difference being maintained between each in regular gradation from the best land in the Village to the worst. A statement of classes was then taken from them, exhibiting their view of the matter, but for the reasons above stated, this was (at least in every case hitherto) found very defective. The termdar then proceeded to the fields, accompanied by as many ryots as he could collect, and in their presence noted all the particulars affecting the value of the land, according to the form, and with their aid and concurrence assigned it to its proper class taking the best land in the village as a standard. But as this occupied some time, and it was found impossible to have a sufficient number of ryots always present, they were assembled at the close, and the whole of the classes carefully revised with their assistance. Objections taken to particular fields, sometimes as too low and oftener as too high, were decided by a punchayet of the neighbouring villagers, who generally induced the parties interested, to acquiesce willingly in their decision. The punchayet was chosen with great care, and I believe their decisions to have been on the whole fair, but their leaning was rather towards the interests of the ryots than of the Government. For instance, the ryots pointed out 45 numbers in Cusbah Guntoor, which should in their opinion be raised from lower to higher classes. The punchayet confirmed the arrangement of the termdar in every instance. Of 93 numbers indicated by the inhabitants as classed too high, 62 were confirmed, 24 lowered, and 7 were partially reduced, but not to the extent pointed out by the ryots.

18. In fixing the amount of assessment, I paid due attention to the course approved by Government, at the recommendation of the Board of Revenue, viz. "that of fixing the beriz of the whole district first, then descending to pergunnahs and divisions, and thence to villages." This is undoubtedly the most correct order of proceeding, but it presupposes the existence of accounts of the cultivation and collections of former years. In zemindary estates however, these can only be procured from the proprietors, and in Guntoor they are not forth-

coming in a sufficiently complete or accurate state to allow of an estimate being based upon them. Every effort was made to induce the zemindars to yield up their accounts, but in almost every instance the appeals were without success.

19. In the Vasaraddy estates the only perfectly satisfactory returns are those of the seven years from Fusly 1219 (A. D. 1809-10) to Fusly 1225 (A. D. 1815-16), which were prepared (but only for the Chintapilly estate), by the servants of the zemindar and those of the Collector conjointly, in great detail, from the curnum's accounts for a sub-division of the property between the two sons of the late zemindar. The accounts for the remaining years are either those of seasons when the villages were rented, or when the estates or portions of them were taken under the Collector's charge, for longer or shorter periods, by orders of the Civil Court, or for arrears, and managed by temporary establishments, and which cannot therefore be depended upon. The Mubraz accounts are more complete. They extend over a longer period, but are not in the same detail as those of Chintapilly, above-mentioned. About the year 1227 (1817-18) the late zemindar, then an old man without heirs, found that his income had begun to fall off. He thereupon resolved to resign his estates, after an uninterrupted enjoyment of them for 17 yeras, into the hands of the Company, in return for an allowance to himself and his family. In conformity with this determination, he rendered the accounts of the previous 17 years, unreservedly to the Collector, but these are found now only to exist in abstract. The next 9 years are those of the Collector's own management, then come five years of the zemindar's administration, and the rest refer to the Collectors. Of the two divisions of the Suttanapilly estate, the Chilkaloorpud accounts are tolerably complete. The earliest belong to a lengthened minority, during which the property was under the Court of Wards. Those of the subsequent period were given up on my requisition by the widow of the late Zemindar, and bear every appearance of being correct. This was the only instance in which a ready and cheerful acquiescence was accorded to the call for accounts, repeatedly made, to the different proprietors. The Suttanapilly co-proprietor met the demand with obstacles and difficulties, and consequently the statement of the corresponding period in that estate is blank. In both, the acconnts of the last 12 years, for the reasons stated in the case of the Vasareddy estate, are of a doubtful description. The Repilly ac-

counts are the most imperfect of all. None of any kind are forthcoming anterior to 1226 (1816-17) Fusly. Those for the next eleven years are all more or less defective, and the missing particulars have been supplied by estimates. During the next seven years the estate was under the Court of Wards, and the last period is open to the objections stated in the other cases above mentioned.

20. Insufficient as these data are, they will prove useful when compared with the *true* extent and value of the land to be ascertained by the survey; but at present the means of checking them do not exist. Under these circumstances it became necessary to depart in some degree from the letter of my instructions and to adopt some other plan calculated to yield a more satisfactory result. The survey and classification of that portion of the Vasareddy estate that has been completed, (viz. the Guntoor Tannah,) furnished grounds for testing the value of the accounts of *its* revenues in former years, and the data so obtained have been taken as a means of adjusting the rest.

21. The accounts of this Tannah* are found in an uninterrupted series for the last 23 years, or from 1232 (1822-23) to 1253 (1843-44) inclusive. But we are likewise in possession of those of seven years of the best period of the District which, given when the two adopted sons of Vencatadri Naidoo were about to divide the Estate, may be considered to be tolerably authentic. The average of these seven years from 1219 (1809-10) to 1225 (1815-16) is Rupees 27,223-2-10, (No. 1.) The average price of jowaree, the staple produce for the same period, being about 147 Rupees the garce.† After these come three broken years, and then the connected series from 1231 (1821-22) to 1253 (1843-44), the accounts of which are of a mixed character, but on the whole less trustworthy than the preceding ones, inasmuch as they are derived partly from renters, and partly from occasional servants employed by the Collector, as exigencies arose, and then discharged. In 1230 (1820-21) the whole estate was attached and placed under a temporary establishment, but in December 1234 (1824-25) the Guntoor and Koorpaud Tannahs were released and remained in the hands of the proprietor for little more than a twelve month, when they were again assumed in February 1235 (1825-26). They continued under attachment till 1246 (1836-37,) in which year the administration was made

* Statement No. 1.
† Rs. 36¾ per Candy.

over to the Zemindar, not as proprietor, but in the capacity of a ministerial officer on behalf of Government, though with full control over the servants and accounts. This arrangment lessened the Collector's means of control and held out irresistible temptations to the Zemindar to conceal the true condition of the estate and to divert the proceeds to his own use. Great caution is required therefore in receiving statements derived from such sources. The average collections (exclusive of agraharum jodigee) were :

For the whole period (1231 to 1253),... ...Rupees	18,984	0	10
For the first 10 years (1231 to 1240),... ... „	22,194	0	6
And for the last ten (1244 to 1253),... ... „	14,913	2	0

The average price of jawaree for each series respectively being Rupees... ... .129,145¼ and 101½ the garce.* About the middle of this period of 23 years occurred the severe famine of Fusly 1242 (A. D. 1832-33) followed by an epidemic fever in Fusly 1244 (A. D. 1834-35,) that swept off a considerable proportion of the already reduced population. The district was beginning slowly to recover from these calamities, when a combination among the public servants to defraud the Government by extensive malversation, and a great and rapid fall in the price of grain, again reduced it to the lowest ebb.

22. In judging of the capabilities of the Circar to bear an increased revenue, it must be kept in mind, that the depression under which it now labors has arisen partly from natural causes of frequent occasional recurrence, but of transient influence ; partly from mal-administration to be provided against in future ; and partly from an influx of cheap grain, derived from a new source of supply, which, (as will be more fully noticed hereafter,) has every appearance of being permanent, and must exercise a continued influence on a tract so exclusively agricultural as Guntoor.

23. Two estimates have been framed under these considerations ; the basis of the first is *the collections* of the last 20 years, exclusive of the two last years of mismanagement and low prices. This gives a sum of Rupees 19,497-11-7 for the average revenue, and of Rupees 135½ per garce,† for the average price; but the latter includes the famine prices of Fusly 1242 (A. D. 1832-33), and the two following years, during which the revenue did not fluctuate in the same propor-

* 33¾ Rupees per Candy.
† or 32¼-36¾-25¾ the Candy.

tion.* Excluding these, the average is 127¾ Rupees.† If this be compared with the average of the 7 best years above mentioned, after deducting one-fourth, as was done in the Ceded Districts, the result is Rupees 20,417-6-3 which nearly corresponds with the average of the whole 32 years, for which account, are forthcoming, viz. Rupees 20,786, 14-10. The same results are exhibited in the accompanying diagram.‡ It may fairly be assumed therefore that the Guntoor Tannah is capable of yeilding a revenue of 20,000 Rupees, one year with another, if properly managed, with an average price of 100 to 120 Rupees the garce.

24. But it may be objected that an estimate, based on accounts of collections, is liable to doubt, especially for the period of the *last* 10 years, in which it is known that the Zemindars levied considerable sums as nuzzurrana, and that the native servants received extra collections to a large amount, none of which appear in the accounts. Proofs of this were obtained from all parts of the district, and in particular, as regards the surveyed lands, from the seizure of the dufters of the curnums of Takellapad, a village of the Guntoor talook.§ A scrutiny of these detected a difference between the average collection of 12 years, recorded in the public accounts and that obtained from the true accounts of 20 per cent.

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* See the introductory paras p. 6.

† 32 Rs. per candy.

‡ Suggested by the Bombay Papers.

		Rs.
§ Takellapad collections as per public accounts		2,599
Do. do.	as per curnum's accounts first rendered	2,740
Do. do.	as per do. do. seized under warrant	3,131

The last being 14¼ per cent in excess of the second and 20½ in excess of the first.

N. B. The circumstances of Takellapad differ from those of most other Villages. It was long under rent and has been more improved than any other Village in the Tannah, so that there is hardly any waste land in it. This progressive improvement and increase of Beriz rendered it more easy to make away with the collections. An estimate founded on these data, adding 20 per cent. to the collections of the last 12 years, proved altogether inadequate.

25. Another estimate therefore has been framed on the demand of the 10 years, preceding the famine, or from Fusly 1232 (A. D. 1822-23) to Fusly 1241 (A. D. 1831-32); thus excluding most of the disturbing causes now in operation. The collections of this period fell little short of the demand, but to the latter have been added wandra (the reduction to privileged classes), and some other items, giving a total (exclusive of agraharam jodee), of Rupees 23,098.* On this basis the demand for the Guntoor Talook has been taken at Rupees 22,112, as in the subjoined table :

	Beriz.	Collections.
* Average of 10 years,...........	22,379	22,222
Add wandra, &c....—....................	718	
	23,097	

Names of Villages.			Estimate framed by the Tarmdar or Assessor.			Estimate framed by the Sur Tarmdar.			First Estimate framed by the Commissioner.						Second Estimate framed by the Commissioner.					
									Average collections of 20 years, from Fusly 1232 to 1251.			Estimated Beriz.			Average Beriz of 10, prior to famine, including Wandra, &c.			Estimated Beriz.		
	Mouza.	Muzra.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
Guntoor,............	1	1	8,296	1	0	8,203	1	4	6,712	3	8	7,324	14	4	8,729	7	4	8,200	0	0
Nallapad,............	1	7	8,158	11	9	9,456	14	9	8,591	7	11	8,253	8	9	10,080	3	10	9,400	0	0
Takellapad,..........	1	0	4,761	11	2	4,411	0	2	3,066	10	4	3,091	12	2	2,823	5	8	3,100	0	0
Bontapad,............	1	0	1,091	1	6	1,091	1	6	912	8	2	1,017	1	6	1,276	4	11	1,100	0	0
Vamavarumpad,....	1	0	414	2	3	312	0	3	214	13	6	312	0	3	189	4	4	312	0	0
Total,......			22,721	11	8	23,474	2	0	19,497	11	7	19,999	5	0	23,098	10	1	22,112	0	0
Ramachendrapooram Agraharum,.	0	1	1,057	12	0	930	6	0	0	0	0	842	9	0	0	0	0	0	0	0
Grand Total,........................			23,779	7	8	24,404	8	0	0	0	0	20,841	14	0	0	0	0	0	0	0

26. Of these two calculations, (the one derived from the *collec-*
information obtained from the survey, and statistical enquiries made
sumed it to be the most accurate in that particular instance. It is cer-
to the spirit of the 8th para. of my instructions to be "in accordance
Court of Directors and by the Government." The other is made more
limited knowledge of the resources of the district it is safer that the
this principle, because so easily susceptible of correction, as better data
first instance, the dues of Government may be unnecessarily sacrificed
estimate of the demand according to the present extent of cultivation

			Beriz.			
			Amount of the above five Villages.	Amount of the Guntoor Tannah, consisting of 40 Villages.	Amount of the Chintapillay Zemindary, consisting of 266 Villages.	Total Amount of 4 Zemindaries consisting of 882 Villages.
1	Average of 7 years viz. from 1191 to Fusly 1197.		31,176	65,963	5,72,631	19,08,384
2	Do. 6 years „ 1203 to „ 1208.		24,591	32,069	3,97,947	12,16,576
3	Permanent Settlement,........................		0	0	4,29,765	12,25,458
4	Average of 7 years viz. from 1219 to Fusly 1225.		30,794	51,093	7,52,006	0
5	Do. 10 years „ 1232 to „ 1241.		23,098	39,444	5,83,457	17,69,921
6	For Fusly 1241 previous to the famine, viz. Fusly 1242....................................		22,429	36,777	4,95,131	16,44,927
7	Average of 10 years, viz. from 1242 to Fusly 1251		18,436	25,749	3,17,070	10,34,595
8	Do. 20 years „ 1232 to „ 1251.		20,767	32,597	4,50,264	13,65,684
9	Do. 12 years „ 1242 to „ 1253.		18,321	25,684	3,12,308	10,23,320
10	For Fusly 1253..		17,697	25,226	2,71,567	9,63,057
11	Estimate framed by the Tarmdar..................		22,721	0	0	0
12	Do. by the Sur Tarmdar.........		23,474	0	0	0
13	First Estimate framed by the Commissioner.....		19,999	0	0	0
14	Second do. do. do............		22,112	37,000	5,40,000	14,30,000
Comparison.	Difference between Nos. 4 and 14,................	—	8,682	14,093	2,12,006	0
	Per Centage...........	—	28	27	28	0
	Difference between Nos. 5 and 14................	—	986	2,444	43,457	3,39,921
	Per Centage...........	—	4	6	7	19
	Difference between Nos. 7 and 14................	+	3,675	11,250	2,22,929	3,95,404
	Per Centage...........	+	19	43	70	38
	Difference between Nos. 3 and 14................	+	0	0	1,10,235	2,04,541
	Per Centage...........	+	0	0	25	16

tions the other from the demand,) the first agrees most nearly with the without reference to it for the settled Villages. I have therefore as-tainly the most favorable to the ryot, and may be considered according with the great principle of moderation repeatedly inculcated by the with reference to the interests of Government, and in our present very calculation of the probable revenue of the whole province should rest on are procured hereafter. Whereas if the scale is pitched too low in the before the error is discovered. Guided by these views, the following has been prepared :—

Collections.				
Amount of the above five Villages.	Amount of the Guntoor Tannah, consisting of 40 Villages.	Amount of Chintapilly Zemindary consisting of 266 Villages.	Total amount of 4 Zemindaries consisting of 882 Villages.	
31,176	65,963	5,72,631	19,08,384	Nizam's Government.
24,591	32,069	3,97,937	11,99,625	Despondies account of the Company's administration.
0	0	4,29,765	12,25,458	Permanent settlement ; 1210 Fusly.
27,942	48,125	7,27,533	0	Subdivision accounts of the Vasreddy Estates only.
22,940	38,038	5,38,557	16,21,437	Ten years *before* the Famine.
22,429	36,125	4,01,048	13,72,877	The year before the Famine.
17,492	23,092	2,74,423	8,47,023	Ten years *after* the Famine.
20,216	30,565	4,06,491	12,03,443	The collections are inclusive of the unauthorized amount discovered in the late enquiry.
16,800	22,734	2,72,077	8,46,208	
13,448	21,370	2,43,995	7,64,941	
22,721	0	0	0	For the Villages of the experimental survey only.
23,474	0	0	0	
19,999	0	0	0	
22,112	37,000	5,40,000	14,30,000	For the whole Circar.
....	....	....	....	For the Vasreddy Estates only.
....	....	....	....	For the whole Series.

The proportions assigned to the Cintapully Division of the Vassareddy Estate is based on No. 4, because the accounts of that period are believed to be more exact than those of any other. From the average Beriz of the 7 years, viz. Rupees 7,52,006, a deduction of 28 per cent has been made, (on the principle explained in para 20) that being the proportion of difference between the second of the proposed estimates and the 7 years average demand of the *surveyed Villages.* The quota assigned to the remaining estate is derived from No. 5, the Beriz of the 10 years preceding the last great famine, a period for which, more than for any other, the accounts of all the estates exist in a complete form, the series being perfect except for Sattanapilly, of which 2 years only are forthcoming, and for Chilkaloorpaud, in which a single year is wanting. During this period, many Villages were held on Rents which were punctually discharged, from which fact, and from the less satisfactory nature of the accounts themselves, it is to be inferred that the resources of the Villages are *under* rather than *over-rated.* From the average of these ten years* therefore, minus the share† of Chintapully already disposed of, it has been judged sufficient to subtract a smaller proportion, or 25 per cent,‡ for the disasters of late years, and the remainder,§ together with the estimated demand of Chintapully, makes a total of upwards of 14 lakhs for the demand of the whole district, an amount less than the assets of the Permanent settlement‖ by 22 per cent., but exceeding that settlement itself by $16\frac{3}{4}$ per cent.¶ It is not improbable that this may be found somewhat above the mark, but that it is not excessive may be inferred from the facts, that nearly the same amount was actually collected** in the year before the famine, and that the average demand†† of the last 20 years falls not far short of it. The revenue even of 1253 Fusly, under every disadvantage arising from former misfortunes, from fall of price, from fraudulent rents, from collusive abandonment of land, from needless balances, and from shameless peculation, exhibits a Beriz of 9,63,057,

	Rupees.
*	17,69,921
†	5,83,457
	11,86,463
‡	2,96,615
§	8,89,847
A	5,40,000
	14,29,847

	Rupees.
‖	18,38,167
	14,29,847
	4,08,340=22-3-5 per cent.

¶ See Table.

** Collection of Fusly 1241, Rs. 13,72,877, See Table.

†† No. 8 of the Table, Rs. 13,65,684.

of which 7,64,941 were recovered, notwithstanding so many drawbacks. Having obtained a standard of comparison for the settlement of the surveyed villages from the accounts of their former revenue, it remains to be explained how their present capabilities were ascertained from a consideration of their intrinsic fertility and other statistical facts.

27. The principle of classification described in a former para, was that of causing the cultivators themselves to arrange their fields according to their productiveness under the check of the Assesors. To ensure uniformity and diligence in the proceedings of these agents, they were required to note certain particulars connected with each field; one of the most important of which was the quantity of grain it would yield when bearing full crop. The whole were then arranged in classes according to their degrees of productiveness, and, lastly, a rate of assessment was settled upon each class. This was calculated on its produce converted into money at an average market price, two thirds of which were left to the Ryot for his labor and profit, and the remaining third allotted to the Land Tax. It is not pretended, nor is it possible, that these calculations should be accurate in every instance, but, being founded on numerous enquiries, made not only in the surveyed Villages, but all over the District, they are probably not very far from the truth.

28. The great demand for fodder in a Cattle breeding Country like Guntoor induced me to frame two Estimates of produce, one including straw and forage (boossa), the other confined to grain alone. These will be found in the Tabular Statement No. 2. It includes the staple produce, Jonna, and the grains usually sown with it, and miscellaneous products which are of trifling amount. The produce is that of a fair Corp, in an average year, when no remissions are required. And the commutation price has been assumed at a low average with reference to what may be expected in seasons of plenty. In an unfavourable season the conditions will of course be reversed; the produce will be less, the price greater; but the relative bearing of both on the assessment will be the same. The produce assigned to the first class, viz. 8-7$\frac{1}{3}$ candies* the coochal of 24 acres, or 418$\frac{3}{4}$ seers† an acre, appears a small outturn for the best land. And so it is in comparison with other districts. But this arises

* Col. 11.
† Col. 20.

from physical causes. The Guntoor circar, though a very productive, is not a very fertile tract. The whole extent of its surface, however, except that occupied by a few hills is arable, and a large proportion of it is actually under tillage. But the soil and other natural qualities already described in the opening paras, are not of a superior order. Its productiveness as a district arises from the large proportion of its area that is fitted for ordinary cultivation rather than from the superior richness of particular parts. Not that it is without spots of great fertility, but they bear no comparison to the great extent of very moderately productive soils. The latter predominate largely in the surveyed lands, which are moreover of a remarkably uniform character.* Their position near the Condavid hills, and the greater inclination of the plain in that neighbourhood, render them more subject to the action of the general drainage.† The superficial soil therefore has not the depth and richness of that nearer the sea, and in the neighbourhood of the Kistna.

29. The comparatively inferior produce of guntoor has often attracted attention and has led to frequent discussions between the local and controlling authorities,‡ particularly at the time of the Permanent settlement. At length Mr. Andrew Scott, by whom that Assessment was concluded, employed his Assistant for some time in cutting, thrashing, and measuring the produce of a certain extent of land, in different Villages, throughout the District. The result is given in a table that accompanied his report to the Board, dated 24th February 1802. One of the villages examined was Cusbah Guntoor, the produce of which for three sorts of land, the best, the medium, and the worst, is mercals $20\frac{7}{12}$; $18\frac{1}{6}$ $8\frac{1}{6}$ per Madras Cawny;§ the equivalents of which are $185\frac{1}{2}$, 165, $73\frac{3}{4}$ seers per acre, which is considerably under the estimate now made. But the disparity is less if we suppose, as was probably the case, that the predominating soils only were examined,

* NOTE. See, in Statement No. 5, the large proportion of land in the six medial classes, and the small extent in the two first and two last. See p. 31.

† See para 2.

‡ From Collector to Board, 19th December 1795.
— — — 12th July 1796.
— — — 25th November 1796.
— — — 30th November 1797.
To Collector, 10th May 1799. Para 3.
— — 3d April 1800. Paras 7-8.
— — 27th May 1800. Paras 3-4.
— — 1st April 1801, Para 7.
From Collector 6th June 1801. Enclosure 1.
To Collector 25th in Cons. 28th December 1801 Paras 9 at 16 and Para 20.
From Collector, 24th February 1802, Paras 9 at 11 and Enclosure.

§

	Pooties.	Koodoos.	
1st	4	3	per Coochal.
2d	3	2	— —
3d	1	17	— —
Avarage	3	4	

those namely which are placed in the 3d to the 8th Classes of the present settlement, though the comparison is still in favor of the latter.

30. The produce thus determined has been converted into money at an average price of 24 Rupees per Candy, which is equivalent to 96 Rupees the garce, and is the lowest of several averages taken as follows:—

	Per Garce. Rs.	per Candy or Pooty.
1. Average of the last 7 years of the Nizam's Government from 1191 to 1197 Fusly,...	155½	$38\frac{14}{16}$
2. Do. do. of 31 years from 1223, to 1253 Fusly	141½	$35\frac{6}{16}$
3. Do. do. of 10 years before the famine from 1232 to 1241 Fusly	141	$35\frac{4}{16}$
4. Do. do. of 10 years including three famine years from 1242 to 1251,... ...	129½	$32\frac{6}{16}$
5. Average of 12 years including famine years from Fusly 1242 to 1253	116¾	29-3
6. Do. do. of 8 years excluding the two highest 1242-3, and the two lowest, 1252-3...	113¾	$28\frac{7}{16}$
7. Do. do of 6 years, after deducting the 3 highest and 3 lowest...	112	28
8. Do. do. of 9 years, from 1245 to 1253 Fusly...	96	24

These averages at first sight appear to indicate a tolerably steady market price of about 120 Rupees the garce, or 30 Rupees the candy, decreasing slightly since the famine, and the accompanying Diagram exhibits a similar conclusion. But the loose manner in which these accounts are prepared, and the averages are calculated in our Cutcherries, render such returns somewhat fallacious. In point of fact the fluctutions have been far greater than those averages would lead to infer. This will be more apparent from the second Diagram shewing the Maximum and Minimum price of each year. From this it is seen that the limits of fluctuation for jowaree, the staple grain, in the 13 years since the famine, have been Rupees* 414 and 44, and antecedent to the famine Rupees 292 and 80. All the information however, and both the Diagrams, go to shew that prices have fallen gradually since the famine,

* See Statement No. 3.

and that in 1253 Fusly they had declined to a point* altogether unprecedented. Several causes are alleged in explanation of this state of things: the chief of which are, the decrease of non-productive consumers owing to the decay of the Zemindars, and the more economical establishments of the Government; the increase of producers caused by the difficulty of obtaining service as formerly, which makes the supply exceed the demand; the supply of foreign grain from the opposite Coast, the cheapness of which has not only made it supercede the use of Jonna among a class of the inhabitants who formerly ate nothing else, but has forestalled and undersold the dry grains that used to be exported to the districts, North and South of Guntoor, where only the more expensive article of Paddy is usually grown. All these causes have undoubtedly operated to bring about the present state of the market; but whereas the two former are general and apply more or less to all parts of the Company's possessions, the last affects the Northern Circars only. The rapid improvement of the provinces wrested from the burmese, and their conversion from pestilential swamps and forests into populous and richly cultivated tracts, with a land tax of the lightest description, have given birth to an extensive exportation of rice, a large and increasing proportion of which finds its way into the Indian markets. Previous to the famine of 1832-3 the trade had hardly an existence; but since then it has gone on steadily increasing with reference to the demand in this country, nor has it apparently been discouraged by the great fall of prices in the two last years. The statement† in the margin of the imports of Grain into the Zillah for the last 23 years shews how completely the course of the grain trade has changed, and the return of

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* Note.—44 Rs. the Garce or 11 Rs. the Candy.—In 1796-7 and 1797-8 it fell to 56 Rs. the Garce or 14 per candy from the famine price of 1791-2, which had attained the height of 480 Rs. the Garce or 120 Rs. the Candy.

See Statement No. 4

	Rupees.		Rupees.
† Fusly 1231 at 35 ...	0	Fusly 1245 ...	1,46,389
" 1236 ...	2,244	" 1246 ...	3,34,259
" 1237 ...	0	" 1247 ...	1,78,182
" 1238 ...	0	" 1248 ...	1,47,733
" 1239 ...	14,101	" 1249 ...	1,56,218
" 1240 ...	2,584	" 1250 ...	1,06,536
" 1241 ...	7,490	" 1251 ...	1,16,029
" 1242 ...	3,12,451	" 1252 ...	66,150
" 1243 ...	2,68,438	" 1252 ...	1,19,374
" 1244 ...	4,13,192		

imports* from the East Coast of the Bay of Bengal alone proves how rapidly the supply from that quarter has risen into importance.† Nor is it to be expected that the light import duty imposed by Act VI of 1844 can exercise any material influence, when the year of the lowest prices ever known opposed no check to the influx of a supply valued at 1,20,000 Rupees. This shews that the Trade is firmly established, and that the supply may be expected to increase rather than to diminish. It is for this reason that I have adopted the lowest of the above averages in calculating the value of the government share of the produce in a season of plenty, because it is derived from the only period during which the influence of the foreign supply has been felt on the home markets. I do not consider it probable, under existing circumstances, that the occurrence of a bad harvest will allow *the average* to rise above 100 or 120 Rupees the garce, until a new impulse is given to agricultural enterprise, and the cultivation of exportable produce is made to supplant, in a considerable degree, the present exclusive growth of articles of food.

31. Having described the different stages of the survey in detail, it is time to shew the results obtained from them. The dry lands form ten classes: the garden, which are of trifling amount, two; as shewn at

	Rupees.		Rupees.
* Fusly 1244 (1834-35)	20,076	Fusly 1249 (1839-40)	1,46,260
„ 1245 (1835-36)	2,01,165	„ 1250 (1840-41)	1,11,923
„ 1246 (1836-37)	1,33,827	„ 1251 (1841-42)	81,025
„ 1247 (1837-38)	2,72,509	„ 1252 (1842-43)	84,737
„ 1248 (1838-39)	1,06,958	„ 1253 (1843-44)	95,762

† NOTE. The Statement of general importation was obtained in the district. It does not discriminate the Countries from which the supplies were received. That of the imports from Arracan &c. was furnished by the Reporter of External Commerce to the Board of Revenue. There are some discrepancies between the two, but the agreement of the general results amply bears out the argument in support of which they are quoted.

length in statement No. 5, of which the figures in the margin* are an abstract. The whole number of classes occurs only in one village, Nallapad, which however is more properly a group of villages, having seven muzras or dependent townships within its limits. It extends from the base of the Condavid chain into the black plain, thus including every variety of soil, from the most inferior red to the best mixed and black. The other villages have not more than from 4 to 8 each. The general result of the settlement is shewn in the following table :—

Number of Villages.			Sircar Land.		Enam Land.					Total arable land.	
					On Quit Rent.			Rent Free.			
Mouza.	Mazra.	Total Villages.	Acres.	Rupees	Area.	Assessment.	Jodigee	Acres.	Rs.	Acres.	Rs.
					Acres	Rs.	Rupees.				
5	8	13	18,775	23,970	100	114	20-7-16	3,733	4,862	22,608	28,947
0	1	1	0	0	842	842	164	0		842	842
5	9	14	18,775	23,970	942	956	184-7-16	3,733	4,862	23,450	29,789

From this it will be seen that the Government land, if fully cultivated, is capable of yielding a revenue of 23,970 Rupees, or an average assessment of Rs. 1 A. 4 P. 5 the acre, which, compared with former settlements, is as follows :—

Beriz of the Government arable land assessed according to				The present survey assessment therefore		
The present survey.	Average of 7 years of the best times.	Average of 10 years before the famine.	Average of 20 years to 1251 Fusly.	Is less than the 7 years average by.	Exceeds the 10 years average by.	Exceeds the 20 years average by.
Rupees 23,970	Rupees 30,794	Rupees 23,098	Rupees 20,767	Rupees 6,824	Rupees 872	Rupees 3,203

* Class.	Rate.	Area. acres.	Assessment. Rupees.
1	3	204	614
2	2½	483	1,208
3	2	2,100	4,200
4	1¾	1,022	1,789
5	1½	2,282	3,423
6	1¼	5,513	6,892
7	1	3,679	3,679
8	¾	2,082	1,561
9	½	781	390
10	¼	608	152

32. The Guntoor talook possesses advantages in the uniform character of its soil, its general aptness for tillage, the constant demand of the principal market of the district for its produce, favorable to its extensive cultivation. It has indeed recently fallen off like every thing else in the district, but this effect is only temporary, and it may reasonably be expected that, when the new rates come into force, the present occupation of land will be extended and the proposed assessment realized in average seasons, nearly to its limit. The proportion now under cultivation is 14,312½ acres on which the demand of Fusly 1253 (A. D. 1843-44) was Rupees 16,291¾. The proposed assessment on it, is fixed at Rupees 19,271¾. But this increase has not been effected by raising the assessment. A large proportion is derived from items omitted from the just dues of Government. These alone come to 1832 Rupees, and the rest is made up by the equalizing operation of the new rates.* Much of the best land was held by favored individuals at reduced rents. In the majority of the villages throughout the district the curnums exercise an undue degree of influence that enables them to monopolize the best land. What they cannot cultivate with their own means they sublet to ryots, claiming wandra or privileged remission from Government, and exacting the full demand from their under-tenants. The curnums of Cusbah Guntoor are a very powerful and numerous family. They had possession of upwards of a fourth part of the lands of the village, all of which they enjoyed on the most favorable terms. The effect of the new rates on the holding of a single individual among them, was to raise his assessment upwards of 200 Rupees, and of another upwards of 150. The apparent increase of assessment, as it affects the present cultivation therefore must not be supposed to arise from the imposition of *higher rates*, but from the effect of a just and uniform system of taxation in developing resources and in regulating *unequal* and *partial* rates. This consequence must be kept in mind by the Collector when the new rates are brought into force. They will naturally meet with the determined opposition of all the leading inhabitants, who will probably not only refuse to cultivate themselves, but will

* Items omitted in the demand of	1253 Fusly.
Old reductions in the rates	526
Waste land on cowle	171
Wandra	46
Concealed cultivation	754
Appropriations of the grama cuntam or village site	335
	1832

incite those within the sphere of their influence to follow their example. The claim of wandra by the privileged classes of Cusbah Guntoor, is a recent pretension to which they have no right whatever. It was never allowed by the former Zemindar, though conceded by the present one,* during the short time he acted as Manager on behalf of Government, that he might purchase the connivance of the curnums at his own malversations. It has been since regularly brought to account in the settlement of the Collector, but payment has been withheld, and it has remained among the unrecovered balances. Any such resistance as has been anticipated cannot last, and if the new settlement is firmly maintained, I have such confidence in its moderation and equality that I am persuaded it will shortly ensure an increased permanent revenue. It is essential to the accomplishment of this object that the rates should be rigidly enforced and no remissions allowed.† This will both discourage pauper cultivators, unable to retain their lands without annual abatements to make up for their want of capital and slovenly farming, and it will check the fruitful source of corruption opened to our native servants by the recurrence of annual remissions and balances. This punctuality is a condition indispensable to the success of any regular settlements based on the principles of moderation.

33. The titles of the alienated lands underwent a careful scrutiny. They consist of an Agraharum village named Ramachendrapooram, and of detached maniums in the other villages. The only data forthcoming for the assessment of Ramachendrapooram, are part of the 7 years' subdivision accounts, some of which exhibit estimates of the produce converted into money. The average of these for three years (from 1220 to 1222,) gives a demand of Rupees 869-10-8. And as all the land was under cultivation then as well as now, and the commutation price was assumed at ½d less than the *nerek* of the day‡ or nearly that adopted in the calculations of the present settlement, I felt no hesitation in confirming the assessment derived from the classification and produce amounting to Rupees 142-9-0.

34. The annual Quit Rent, to which the village is liable in the

* Ramanatha Baboo.

† NOTE. Occasions must arise on which general remissions will be necessary, but these are exceptions to the rule, and may always receive special sanction. The strict exaction of a just demand though it may seem harsh, will eventually prove a lasting benefit both to the ryots and the Government.

‡ NOTE.—The market price was from 8 to 9 Pagodas the candy, or 138 to 144 the garce. That in the Zemindar's account is 6 to 6½ Pagodas the candy, or 96 to 104 Rupees the garce, probably in consideration of the sacred character of the enamdars.

present accounts, is 60 Rupees. But in the 7 years' accounts above referred to, it is 164 Rupees. When called on to shew why they should not be subjected to the latter demand, they produced five documents.—A sunnud, dated A. D. 1718, granting 30 coochaloo of land on rent free tenure to 17 Bramins.—A second, dated in 1759, burthening it with a quit rent of 15 Pagodas, or 60 Rupees.—A third, dated in 1762, adding 6 coochaloo more to the 30 formerly given, but not specifying the jodiga.—A fourth, in 1784, by the late Zemindar limiting it to 60 Rupees; but this document, though it bears the seal of Vencatadri Naidoo, is without his signature. The last paper is an order given by Mr. Oakes the Collector, dated 17th August 1819, stating, that as their sunnuds limited the demand upon them to 60 Rupees, they were not to pay more than that sum in future. This takeed appears, from the terms in which it is couched, to have been given without an investigation of the merits of the question. The accounts from 1219 (1809-10) to 1225 (1815-16) clearly shew the jodigy to have been 164 Rupees, which was regularly collected during that period, and from subsequent accounts appears to have been realized till 1228 Fusly (A. D. 1818-9). This fact neutralizes the doubtful sunnud (No. 4) of Vencatadri Naidoo, who, if he ever gave such a document, cancelled it by his own subsequent acts. The grant was originally made rent free, then saddled with a tax of Rupees 60, then more land (not falling naturally within the limts of the original village* but cut out of the boundary of the Cusbah) was added, then a quit rent of 164 Rupees realized from the whole, for a succession of years, which was reduced by the Collector to 60 Rupees. A consideration of all these circumstances leaves no doubt that the true quit rent was 164 Rupees; and as the Collector had no power to reduce the public dues without the sanction of superior authority, and had evidently taken no pains to ascertain the real state of the case, the former demand has been brought to account, and with reference to the resources of the village may be considered a very easy quit rent.

35. The detached enams have been surveyed as they stood in the village Accounts for 1253 (1843-44), Fusly where they are stated to amount to $139\frac{1}{16}$ coochaloo. By the survey they are found to consist

* NOTE.—In the register of enams prepared by Mr. Ram the Collector in 1798 the agraharm is entered at 30 kesarpati or enam coochaloo, only wtih a jodigee of 60 Rupees. The whole 36 are now enjoyed, and are equivalent to 45 kalari or standard coochaloo.

of 284 Nos. or fields, measuring acres 3833-15-7 and assessable at Rupees $4976\frac{1}{16}$ being in the proportion of 20 per cent. to the area of the Government land. There being no accurate register of enam lands in this district, it is impossible to say whether the whole of these are held on good titles or not, but the probability is that nearly one-third or one-fourth will be found to be usurpations. A list of enams* was prepared by the Collector in 1798 in English only, but apparently not of a very authentic character, the entries in which are compared with the existing returns as follows :—

	Amount alienated.	Entered but never claimed.	Claimed in part only.	Remain in actual enjoyment.	Equivalent according to Survey.		Of which enjoyed uninterruptedly.		Resumed and again restored.	
	Coochaloo	Coochaloo			Nos.	Acres.	Nos.	Acres.	Nos.	Acres.
Entered in Mr. Ram's Register.	$104\frac{1}{4}$	23	$6\frac{10\frac{3}{4}}{16}$	$73\frac{9\frac{1}{4}}{16}$	109	1,877	79	1,395	30	482
Not entered in the register but held on sunnuds from the Zemindar........	$20\frac{1}{2}$	$2\frac{3}{4}$	0	$17\frac{3}{4}$	27	483	21	348	6	135
Not entered in the Register and no sunnuds forthcoming or parties unable to attend........	$47\frac{11\frac{3}{4}}{16}$	0	0	$47\frac{11\frac{3}{4}}{16}$	148	1,472	0	0	0	0
				$139\frac{1}{16}$	284	3,833				

* From the Collector, Mr. Ram, dated 20th September 1799.

The Sub-division accounts of the seven years from Fusly 1219 (1809-10) to Fusly 1224 (1814-15) afford another ground of comparison :—

	On rent free tenure.	On quit rent tenure.	Total.	Of which unclaimed.	Claimed in part only.	Remain actually enjoyed.
	Coochaloo.	Coochaloo.	Coochaloo.	Coochaloo.	Coochaloo.	Coochaloo.
According to the 7 years' old accounts...............	$66\frac{1}{4}$	$27\frac{3}{4}$	94	$11\frac{11\frac{3}{4}}{16}$	0 $11\frac{11\frac{1}{2}}{16}$	$81\frac{8\frac{3}{4}}{16}$
According to the present accounts.........	0	0	$139\frac{1}{16}$	0	0	$139\frac{1}{16}$
Excess............	0	0	0	0	0	$57\frac{8\frac{1}{4}}{16}$

At a still later period in Fusly 1233 (A. D. 1823-24) the Collector (Mr. Whish) commenced an examination of all the enam lands, but did not bring it to a conclusion. The Returns for these villages in this list* give the following :—

	Rent free Enams.	Jodee Enams.	Total.
	Coochaloo.	Coochaloo.	Coochaloo.
Amount registered............................	$118\frac{11}{16}$	2	$120\frac{11}{16}$
Deduct unclaimed.................	0	0	2
Remaining..............	0	0	$118\frac{11}{16}$
Present amount..............	0	0	$139\frac{1}{16}$
Excess....................	0	0	$20\frac{6}{16}$

These several statements not only differ remarkably in their totals but also in their details. The proportion held free of all demand appears formerly to have been much less than at present. The curnums explained the large proportion of quit rent enam exhibited in the subdivision accounts to have arisen out of a fit of displeasure on the part of the zemindar, who resumed the Surva Maniums of Nellapad and imposed a quit rent on them. A statement which receives some color of probability from the terms in which the jodiga is credited in

* Sujapoor Sreenewas Row's Register.

the accounts of that period. The small amount entered at present* under the head of jodiga, is stated to have been imposed as assessment on some land in excess of the stipulated measurement found in the possession of an enamdar, but the particulars never having been recorded in the accounts, it has been long charged against the whole manium, and has thus in effect come to be a quit rent. This very small amount of jodiga however, and the anxiety to explain the tenure away altogether, throw great doubt on the pretensions of many of those now holding their lands rent-free. Other claims have been established through the connivance of the public servants by means of fictitious sunnuds. A remarkable instance of such fabricated papers came to notice when examining the title deeds. One Parmal Ramana produced 5 documents professing to confer half a coochala of land in Takellapad on his father P. Pardese, which have been forged in a manner so ingenious as might easily deceive one whose suspicion was not alive to the frequency of the practice in Guntoor. They are written on old, worn-out paper, and stamped with the seal of the late zemindar. The latter, though remarkably well executed, exhibits some slight descrepancies when compared with a genuine impression, but the ink is so black and so fresh that it comes off to the touch, and contrasts singularly with the pretended age of the paper and the paleness of the writing. The hand too is exactly the same in all the documents, and shews them to have been written at the same time, though dated at considerable intervals. They have been detained among the records of my office. The scrutiny of the rent free tenures of the whole district is an important subject and has received full consideration in my general report. It is unnecessary therefore to pursue the subject farther at present.

36. I trust that the observations now submitted will be considered to have fulfilled the object of my instructions and to afford a groundwork sufficient to enable the Collector or such other officer as may be appointed for the purpose to carry out the survey in the rest of the zemindary estates. The points that seemed to demand consideration for this object are the general character and capabilities of the district, an estimate of its resources derived from its past revenues, the principles on which the measurement and classification are to be conducted, the means of ascertaining the productiveness of the different soils, the average value

* Rupees 20—7. See para. 31.

of such produce and the proposal of an assessment founded on a consideration of all these particulars, low enough to secure the prosperity and improvement of the ryot without a needless sacrifice of the public revenue. If this conclusion and the data on which it is founded meet with approval, no difficulty need arise in applying them to the remainder of the Circar.

A set of surveyors has been left to carry on the measurement of the Chebrole tannah under the superintendence of the most experienced Termdar. Three more sets were organized and dismissed to their homes before my departure, with the hope of getting permanent employment hereafter, who with examiners, assessors, &c., will all be forthcoming at a short notice if the work is soon to be re-commenced.

It may not be out of place to submit on this occasion a few observations on the subject of revenue surveys generally, particularly under the following circumstances. The late Board* of Revenue in forwarding a review of the survey of the Chingleput district made known their intention of addressing Government again on certain changes and improvements in the conduct of such undertakings, calculated to ensure a greater degree of success in future. The Members were occupied for several weeks in the examination of former reports and of other information contained in very voluminious papers, and had completed the draft of the communication to be submitted, when they were unexpectedly dispersed by disease and the calls of duty, and the office was newly constituted. Under these circumstances, the labours of the late Board necessarily fell to the ground, after they had been prosecuted with much labour and research, almost to a conclusion.

In the draft above mentioned, the Board took a short review of the history of revenue surveys under this Presidency, bringing it down to the period when that of the Ceded Districts was adopted as the model for all succeeding settlements. They observed that no very full exposition of his proceedings had been placed on record by Sir Thomas Munro. His letters give an excellent view of the general scope and purpose of his survey, but the only explanation that is found of the mode in which the details were conducted is confined to the instructions issued to the subordinate native agents. It was farther contended that Sir Thomas never considered his own work to be perfect nor contemplated the probability of

* Proceedings dated.

its being adopted as an unerring model for all future surveys. The difference visible between his last and his first survey sufficiently attest his readiness to adopt improvements. Moreover, they urged that because a survey and settlement had been successfully accomplished by the rare abilities of Sir Thomas, it did not follow that every Collector should be able to effect the same for his own district, and they quoted the opinions of the most eminent authorities to shew the futility of such an expectation. Yet what has been the practice? The execution of this most elaborate and delicate of all financial operations has invariably been imposed on the Collector for the time being, without reference to peculiar fitness or otherwise, like any other revenue duty. After these preliminary observations, the Board proceed to account for the want of success in subsequent surveys by the followng causes: 1. The want of the requisite knowledge and qualifications on the part of Collectors; 2.—The multiplicity of their other duties; and 3.—The frequent change of superintendence during the progress of the work, from the usual contingencies of the service. They described the process by which a Collector, himself unacquainted with the theory or practice of land surveying, sets about the organization of a survey establishment from materials as little qualified by previous training for the discharge of such functions as himself, and shewed that by the time the different agents have become expert their services cease to be required and the experience they have purchased at the expense of the public interests, is lost. They drew attention to the numerous other avocations of a Collector and Magistrate, and shewed how little time remained available for the survey, after the performance of his more pressing current duties; and lastly, they quoted instances of the great number of individuals under whose supervision the surveys of some districts had been carried on.

Reference was then made to the progress of revenue surveys in Bengal and Bombay. In both Presidencies the system has been carried to a pitch of improvement far beyond the condition in which they received it from Madras, where it originated, and where it has long been stationary. This advance is due to an important change introduced under both those Governments for the relief of the Collector from a portion of the duties hitherto heaped exclusively upon him. The plan however differed somewhat in each. In Bengal the details of the survey were committed to officers trained in the art of surveying, but the assessment was made by the Collector. In Bombay both survey

and settlement were entrusted to a distinct department. The Collector had merely to give effect to the assessment which was placed ready made in his hands. The first and most important improvement therefore recommended by the Board was that of a division of labour by which the whole of the details should be taken from the Collector and be placed under a distinct Superintendent with a proper establishment. The benefits to be expected from such a step were stated to be the introduction of a more correct measurement of the area, a more certain and definite classification, and the preservation in a separate department of all the experience gained, and constantly increasing, so that the loss or absence of the head, or of any of the subordinate officers, would be immediately supplied. The improvements suggested in details were taken from the reports of the Bombay officers and consisted in surveying with the cross-staff and chain checked by examiners with the theodolite, in the adoption of field books, and the construction of field and village maps. By the employment of the two first mentioned processes the amount of error was reduced in Bombay to less than 2 per cent. By the two last, false measurements and other fraudulent acts were checked, and the preservation of the results of the survey greatly promoted. They were of opinion that what is called a purely scientific survey was unnecessary, but they considered that the present revenue field survey might with advantage be connected with the primary and secondary trigonometrical surveys already completed. This could be accomplished without additional expense or much extra trouble, if the execution of the revenue survey was entrusted to officers properly qualified, who must necessarily possess a general knowledge of surveying. The Board had more difficulty in dealing with the subject of classification, the most intricate as well as the most important process connected with the survey. Their review of the Bombay rules did not enable them to offer any suggestions of much apparent value beyond that of limiting the classes,* which they seemed to think, as the present Board do and as I myself was persuaded when I commenced the Guntoor survey, might easily be reduced to a comparatively small number. On the mode of fixing the assessment they were unable to throw any new light. They then proceeded to take a general view of all the past surveys of those in progress and of those that would probably be required hereafter,—for the purpose of shewing that if the Government

* Extract Proceedings 16th June 1845, Para 5. From the Commissioner in Guntoor to the Board, May 24, 1845.

should be pleased to entertain their proposal of organizing an Office of Surveys there was ample occupation for it, for many years to come.

As a Member of the late Board I fully concurred in the views of which the above is a sketch, and the six months experience of the details of a survey which I have had at Guntoor have abundantly verified them. The amount of error detected by the check survey in the measurements performed according to the Ceded District plan was 9 per cent,* that in one of the Bombay reports is stated at 1-7 per cent.† The uncertainty that was experienced regarding the correctness of the classification has already been described. It is in fact hardly possible to detect a collusive understanding between the ryots and the assessors if they find it their interest to combine. The check relied upon in the Ceded Districts was the self-interest of the people, which it was supposed would lead to the exposure of undue partiality by those less favorably situated. This may operate in glaring cases, particularly if one village has been preferred to others, but I confess I have never found such readiness to appeal, though I have often tried to evoke it. The fact is, that inequalities in the same village are generally in favor of men of superior intelligence and influence, and the rest have neither knowledge nor independence enough to resist their encroachments. Even at best the vagueness of the principles of classification renders it difficult to decide between idle clamour and well founded complaint.

The main difficulty in the way of a more perfect system of survey that suggested itself to the late Board, was that of the additional expense of a permanent separate establishment with extended European Agency. The means of ascertaining this point are not available to an individual, but might be easily learnt by a reference to the Agra and Bombay Governments. The only point then, to be determined, would be the degree of perfection to which the organization of the Survey Department should be carried. The question lies in a small compass, viz. whether a cheap and rapid settlement attained with considerable inaccuracy is preferable to an exact but more tedious and expensive plan of assessment. Under the first, if it is low enough to make land saleable, the country would improve though the interests of the Government might suffer; for the inequalities of taxation would in time

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* On 1284 acres surveyed again out of 18,919.

† On 11,625 acres measured out of 44,338. Mr. Goldsmid's report dated 1st November 1840, Para 50.

be neutralized (as regards the ryots) by the market price of land. By the second, both the dues of the public and the rights of individuals would be secured, while at the same time a knowledge of the resources of the country would be obtained, applicable to other schemes of general improvement. The one will probably at some later period have to be done over again, the other may be so executed as to serve for all future exigencies. The choice between these two objects will decide the nature of the subsequent arrangements; for a survey can only be executed in one of two ways, either by making use entirely of native agency and confining the duty of the European Officers simply to supervision and direction, or by securing a higher degree of perfection through the direct application of European skill and knowledge to the execution of details. But in either case, it is assumed that the business is to be placed under a separate responsible head.

If the first mentioned plan should be preferred, it will be necessary that the system now in vogue under this Presidency, of which the Ceded District Survey furnishes the best example, should be retained in all essential points. The process of measurement might it is true be made more perfect, and the checks on fraud and error multiplied and rendered more effectual. But there does not seem to be any room for improvement in the mode of classification beyond that of a more careful supervision, because the principle on which it chiefly proceeds is that of having the whole performed by the people themselves, in the absence of a system based on scientific characters, which neither ryots nor assessors would be capable of working. The mode of proceeding is modified somewhat according to the nature of the cultivation. In irrigated Districts, where the revenue has always been taken in kind, and where the amount has been recorded in greater or less detail for a series of years, the classification has been founded on the village accounts of actual produce. In dry Districts, and wherever a money assessment is paid, the produce has been estimated. In both however, the settling officer is wholly dependant on the information and judgment of parties interested in conveying their own views of the matter. He does not possess any direct or certain method of controverting their assertions or testing their accounts. For the actual examination of the produce of one field is no clue to the produce of another of the same alleged class, the circumstances of which may apparently be the same, while in reality they are totally different.

The advantages of a more perfectly constituted system, such as has been introduced in Bombay, are, that the superficial survey would be brought nearly to a state of perfection, the classification would proceed on defined and intelligible data, the revenue survey might be incorporated with the scientific survey and illustrated by field and village maps, so as to present an accurate topographical picture of the country on the largest scale. The present class of native surveyors, if better instructed, will be competent to perform most of the first stage; and for supervision and check under the European Superintendent and his Assistants a very useful class of men has been employed in the other Presidences, viz. the non-commissioned officers of Sappers, whose services are equally available here. No rules can be laid down for a scientific classification. As in every other branch of natural science, a systematic arrangement of soils, according to their comparative richness, can only be compassed by an extensive observation of facts. The number of simple soils and their characters may soon be learnt, but not so the circumstances under which they are associated with each other; neither is it an easy task to estimate the iufluence of extraneous matter, nor to allow for the influence of site, exposure, climate or the action and force of the elements, or other contingencies which can only be ascertained by repeated and careful examination. Any attempt therefore to establish a small number of simple classes or divisions of land with exact and definite characters must of necessity fail, but the number of money rates can easily be restricted within very narrow limits. To bring the varied and even conflicting qualities and conditions that exist in nature within these bounds requires the application of considerable sagacity and of continued attention to the subject.

The Bombay Officers have not rejected the use of native agency in this part of the process, but they have employed it only to a certain extent. According to their survey rules, the native assessors ascertain and note the intrinsic qualities, the field book only comprising the palpable and apparent external characters; but the detection of the more delicate and less appreciable distinctions in other words, its extrinsic qualities, is the exclusive duty of the European Officers. In England the subject is well understood, and the study of it has become a distinct profession, by the exercise of which the value of an estate, or of a piece of land, can be correctly discovered. The opinion of the ap-

praiser is founded on recognized data, and supported by sections of the different localities, from which an opinion of the truth of his conclusions can be formed by other competent judges. How far the experience of Europe will prove useful in India remains to be seen, but the same principles will probably be found applicable to both countries, and a knowledge of them will best enable the officers entrusted with the duty here to lay down rules applicable to all cases.

One other point remains on which a difference of opinion may exist, viz. whether the assessment is to be framed by the Superintendent of the Survey or the Collector, or by both conjointly. No doubt the local knowledge of an experienced Collector might prove very useful in deciding on the proper assessment, but the information acquired by the Surveying Officer in the course of the measurements and classification is also very important. In the North West Provinces the duty was entrusted to the Collector, because there no ryotwar or field-war settlement is known. It was imposed only on estates, or was what may be called a mouzewar settlement. In Bombay again, where the ryotwary system is in full force, and the process of settlement by fields is one of great detail, the duty of the settling officer has devolved on those who conducted the previous steps. The assessment indeed is so intimately connected with the classification that it will not be an easy matter to divide them, and experience does not shew that any detriment has been sustained from the combination of both duties under a common head.

WALTER ELLIOT,

3rd Member of the Board of Revenue.

MADRAS:
18*th December* 1845.

Extract from the Proceedings of the Honorable the President of the Council of India in Council in the Military Department, under date the 7th of September 1855, *No.* 220.

Letter from Lieutenant Colonel A. S. WAUGH, Surveyor General of India, dated Dheradoon, 20th August 1855 ; *to Major F. D. ATKINSON, Offg. Secy. to the Govt. of India Military Department, Fort William.*

SIR,

In obedience to the orders of the President in Council conveyed in your despatch 857 of 28th ultimo, I have* the honor to enclose a list of the papers contained in volume 2 of the Great Trigonometrical Survey of India under the superintendence of the late Colonel Lambton, for the years 1807 to 1811.

* *In the Home Department of* 897 *of 20th July* 1855.

2. From the term Memoirs used in Mr. Secretary Bourdillon's letter,† it is possible that reference may be required to the Memoirs of Topographical Survey, based on Colonel Lambton's triangulation. Copies of all Memoirs of that kind are in the Chief Engineer's Office at Fort Saint George.

† 786 *from Secy. to Govt. of Fort St. George, to Government of India 2d July* 1855.

3. None of Colonel Lambton's papers, that I am aware of, are termed Memoirs. His operations are included in the first 6 volumes of the General Report of the Trigonometrical Survey of the Peninsula of India in M. S. These include all his Trigonometrical operations in the Madras Presidency and part of the Bombay territories.

4. Besides these M. S. volumes of professionel Reports, Colonel Lambton published from time to time in the transactions of the Asiatic Society of Bengal accounts of his operations, of which the following is a list.

1st. An account of the method for extending a Geographical Survey across the Peninsula of India. Vol. 7 pp. 312 to 337.

2d. An account of the measurement of an Arc on the Meridian on the Coast of Coromandel, and the length of a degree deduced therefrom in the latitude 12°-32' Vol. 8, pp. 137, 193.

3d. An account of the Trigonometrical operations in crossing the Peninsula of India and connecting Fort St. George with Mangalore. Vol. 10 pp. 291, 384.

4th. An account of the measurement of an arc on the Meridian comprehended between the latitudes 8° 9' 38-39 and 10° 59' 48"-9. North, being a continuation of the Grand Meridional Arc commenced in 1804 and extending to 14° 6' 19" North, vol. 12 pp. 1, 101.

5th. An account of the measurement of an Arc on the Meridian extending from latitude 10° 59' 49" to 15° 6' 0" 65 North vol. 12, pp. 286, 356.

6th. An account of the measurement of an arc on the Meridian extending from latltude 15° 6' 0," 2 to latitude 18° 3" 45 being a further continuation of the former arc commencing in latitue 8°, 9' 38" vol. 13th pp. 1,127.

5. Besides these papers, Colonel Lambton published in the Philosophical Transactions for 1818, an abstract containing the results of all his measurements from Punna to Damargida.

6. There is also a chart in 8 sheets engraved by Mr. J. Walker, the present Geographer to the Hon'ble E. I. Company, and published by the late Hydrographer Captain James Horsburgh, shewing the whole of Colonel Lambton's operations from 1802 to 1814.

7. My object in enumerating these papers both published and M. S. (in addition to the list as papers appertaining to the operations from 1807 to 1811, which is specifically called for in your letter) is to show, with reference to the proposed Revenue Survey of Madras alluded to in the 1st para, of Mr. Secretary Bourdillon's letter above cited, the nature and extent of Colonel Lambton's papers.

8. With regard to the 2d para. of that letter, I beg to report for the information of the Government of India, that this is the first intimation I have received of a Survey of South Arcot being in progress, and that I am not aware of its character or objects.

List of papers contained in volume II. of the Trigonometrical Survey of the Peninsula of India, under the superintendence of Major W. Lambton, 33d Regiment of Foot, 1807 to 1811.

General account of the Survey from 1807 to 1811, pp. 1 to 12.

Section XI. Meridional series of Triangles connecting the base in Coimbatore with the base near Palamcottah, 75 angles, pp. 13 to 26.

Principal Triangles taken up at Kallagamalli, South East end of the base, and Yaelmatoor hill, and continued to the side, Sekundermalli from Suddragherry, pp. 27 to 31.

Measurement of the base line near Palamcottah, pp. 32 to 34.

Principal Triangles taken up at the base near Pallamcottah, and continued back to the side Sakundermalli from Suddragherry, pp. 35 to 40.

Principal Triangles taken up at the distance Vullanaud from Vullunkota derived from the base near Palamcottah and continued to Pannal station near Cape Comorin, pp. 41 to 43.

Description of the great stations forming the principal Triangles, pp. 44 to 50.

Secondary Triangles 1st class, pp. 51 to 58.

Principal Triangles taken up at Trivandiporam and continued down to Tranquebar 82 Angles, pp. 59 to 63.

Principal Triangles, pp. 64 to 67.

Description of the great stations forming the principal Triangles, pp. 68 to 71.

Secondary Triangles 1st class, pp. 72 to 74.

SECTION XII.

Measurement of base Line near Tanjore, pp. 75 to 78.

Particular of ditto. pp. 79 to 80.

Triangles carried back from the base to the sea Coast at Negapatam and Nagore, pp. 81 to 87.

SECTION XIII. Secondary Triangles 2d class depending on the base near Tanjore carried southerly into Tondiman's country to Tirmium, and northerly to Maillacherrydroog and Carnatighur to connect with that of the year 1803, and referring to the Meridian of Kylasghur, also a series of secondary Triangles 1st class depending on the base in Coimbatore commencing at Panlamalli, Worackmalli and Yalmatoor hill and connecting with the above series at Ravalneloordroog and Kotallum hill, pp. 88 to 110.

SECTION XIV. Secondary Triangles 2d class connecting the base near Tanjore with that in Coimbatore, measured in 1806, pp. 111 to 115.

SECTION XV. Secondary Triangles 2nd class, depending on the base in the Coimbatore and extending Westward to Calicut and Paniany, pp. 116 to 128.

SECTION XVI. Principal Triangles carried round from Cape Comorin through the Travancore country and connected with the secondary Triangles carried through the Coimbatore country to the Sea Coast 92 angles, pp. 129 to 140.

Principal Triangles, pp. 141 to 150.

Description of the Great stations forming the Principal Triangles, pp. 151 to 156.

Secondary Triangles 1st class, pp. 157 to 164.

Pole Star observations at Pummalli station reduced for determining the position of the Meridian, p. 165.

SECTION XVII. Secondary Triangles 1st class, extending along the East Coast and connecting Tutacorin with Ramisseram and Ramnad, pp. 116 to 172.

SECTION XVIII. Reductions of certain distances to the Meridian of Dodagoontah together with the observations for Zenith distances of fixed stars for the purpose of continuing the Meridional arc, pp. 173 to 192.

Appendix to Section XVIII., pp. 193 to 203.

SECTION XIX. General reduction of Latitudes and Longitudes, pp. 204 to 240.

Elevations and depressions, pp. 241 to 244.

Appendix General table of Latitudes and Longitudes, pp. 245 to 267.

Ordered that a copy of the above letter and list be forwarded to the home Department, with reference to Extract from that Department, No. 897, dated the 20th July 1855.

(A true Extract.)

(Signed) F. D. ATKINSON,

Offg. Secy. to the Govt. of India, in the Military Department.

No. 1158.

Copy forwarded to the Government of Fort St. George in continuation of the endorsement No. 973, dated 7th ultimo.

J. W. DALRYMPLE,

Under Secretary to the Govt. of India.

FORT WILLIAM,
HOME DEPARTMENT,
the 14th September 1855.

Extract from the Minutes of Consultation, dated 3d October 1855. *No.* 1110.

Ordered to be communicated to the Chief Engineer, with reference to his letter of the 19th June 1855, No. 142, and in view to such further communication from him, as he may see fit to make in pursuance of the previous correspondence.

(Signed) J. D. BOURDILLON,
Secretary to Government.

REVENUE DEPARTMENT.

No. 44 of 1855.

To the Honorable the Court of Directors of the East India Company.

HONORABLE SIRS,

1. In our letter in this department dated 7th March 1846, No. 10, para. 8, we forwarded to your Honorable Court a copy of a correspondence, and of a Report from Mr. Walter Elliot, then third Member of the Board of Revenue and Commissioner in Guntoor, on the Survey and Assessment of the Guntoor Tanah or Talook, which had been undertaken as the commencement of the Survey and Assessment of the entire District, and had been completed by him. Viewing the question as one of the first importance not only as regarded the future well being of the Guntoor District, but, if a sound and recognized system was introduced, of that of all the Provinces under this Presidency, the Government in Extract Minutes of Consultation 30th August 1845, desired the Board in communication with their Member on deputation, to give the subject full consideration, and report in detail on all material points comprehended in it, and the measures they would recommend to be followed with respect to each; and at the same time directed their attention to some of the more important points* requiring their consideration and report.

* 1. *Classification and Assessment.*
2. *Scale of Classes.*
3. *The Commutation price.*
4. *The best mode of securing permanent boundaries.*
5. *Unauthorized alienations.*
6 *and* 7. *Nature and extent of the survey.*
8. *And the expenses attending it.*

2. The subject was resumed by the Board in their Proceedings of the 26th March 1846, and noticed by Government in Extract Minutes of Consultation 19th May following, copies of which were forwarded to your Honorable Court with the letter of the 22d June 1847; on which occasion it was intimated, that before laying down a system of Survey and Assessment for general adoption, the Government deemed it necessary in the first instance clearly to ascertain the results and effects of Sir Thomas Munro's Ryotwar system in the Ceded Districts.

3. Since the date of those proceedings, the subject of a general revenue survey and settlement of this Presidency has been under the consideration of this Government; and some valuable and interesting Minutes in connection with it have been recorded during the Governments of the Marquis of Tweeddale and Sir Henry Pottinger. We have now the honor to forward copies of those documents as well as of Minutes recorded by the Right Honorable the President and the Members of the present Government, together with an Extract from the Minutes of Consultation of the 14th August 1855, No. 951, in which the entire question in all its bearings has been reviewed and for the present finally disposed of as far as concerns the Madras Government.

4. This review is so complete in itself, that we need hardly do more than refer your Honorable Court to the details it contains, for a full exposition of our views on the subject, and the means we propose to adopt for carrying them out. It describes the imperative necessity for a revenue survey and settlement of the lands of the Madras provinces, and discusses the general questions which are intimately connected with such operations; such as, the size of fields, the survey of Enam lands, the system of settlement, freedom of occupation, classification of soils, valuation of land, the proportion which the assessment shall bear to the gross produce, the principle on which the produce is to be converted into money, the necessity for establishing grain markets as a means of obtaining correct data of prices of grain, the mode of remedying the evil under the ryotwar settlement, of small holdings and pauper ryots, and the advantage of giving ryots a more permanent tenure of their lands.

5. Your Honorable Court will observe (Para. 11) that we propose to adhere generally to the Ryotwar or individual system so long established in this Presidency; and that with the view of giving the ryot a real proprietary interest in the soil, and to induce extended cultivation, we consider that 30 per cent. of the gross produce should under the most favorable conditions constitute the maximum of the

Government demand, subject to dimunitions according to circumstances, which would probably bring the average of the whole to about 25 per cent. of the gross produce. (Paras 15 to 19.) This proportion is intended to be that taken for the general purposes of the State; but we have it in contemplation, besides, to establish cesses for local objects as in the North Western Provinces; especially for the maintenance and improvement of the District Roads, and for education.

6. The operations of the Survey and assessment will include all land usually cultivated, (Para. 30), and all land that ever has been cultivated within memory or according to the village accouts; and will also extend to such land not included in these classes as may seem likely in each village to be brought under the plough, in the extension of cultivation consequent on lighter assessments and a simpler and less annoying revenue system. But no attempt will be now made to survey in detail the jungle and the utterly unreclaimed waste.

7. The present Revenue from Ryotwar Districts and parts of Districts amounts to about 317 lacs of Rupees, and it seems probable that the present actual assessment takes not less than 50 per cent. of the produce of irrigated lands and 35 of unirrigated lands, employed in both cases in the ordinary manner of each kind, omitting the effect of private improvements, and of special cultivation. The reduction of the demand to 25 per cent. of the ordinary produce, would, other things remaining the same, cause a very material loss of Revenue; but it is to be observed that the present assessments are much higher than they were originally, owing to a general and progressive fall in prices subsequently to the introduction of the existing money rates, that they are now admitted to be excessively heavy, and that they have certainly operated to keep much land out of cultivation. There is no doubt that under a moderate assessment a great extension will speedily take place in the occupation of land, and that frauds will be much diminished, and a systematic examination of the Enams or free holdings, which ought to accompany the Survey, will lead to a material addition to the Revenue from that source. We feel assured from these and other considerations noticed in paras. 31 to 35 of our Proceedings, that the result of the proposed measures, instead of a falling off, will be an accession to the Revenue; while, as respects the payers and the public, the gain will be enormous; the Revenue will be derived from resources double or treble those upon which it is levied now, and will be paid with corresponding ease.

* *Surveyor General,*.....	1,000
Establishment,..........	600
Four Depy. Surveyors General,...............	2,500
Their Establishments,...	10,900
Monthly............... ...	15,000
Yearly	1,80,000

8. We propose (Paras. 36 to 43) to have separate Agencies for the Survey and for the Assessment. As regards the former, we propose to have a Surveyor General or Superintendent of the Survey as the head of the Department, with four or more Deputy Surveyors General, at a charge* inclusive of Establishments for each of these Officers of Rupees 1,80,000. We compute that with only four Deputy Surveyors General, the work will occupy twenty-two years, and that its costs will amount to Rupees 38,40,000; but if the scale of the operations is enlarged, the period occupied will be shortened, and the total cost will be diminished.

9. For the Assessment and Settlement, including the classification and valuation of the land, we propose to constitute a Superintendent of Settlement; who will be a Revenue Officer of some experience, and who will be aided by Deputies to work under his orders in the actual operations necessary to fixing the Assessment and Settlement. The salary of the Superintendent, we are of opinion, should not be less than that of a Member of the Board of Revenue, and that of the Deputy Superintendents Rupees 1,000 a month, and the cost of the work performed by them at 10 Rupees per hundred acres on 38 million acres is computed at 38,00,000 Rupees making the total charge inclusive of Survey operations, Rupees 76,40,000.

10. This is a large sum. But it must be remembered that it will be spread pretty equally over a period of fifteen or twenty years (Para. 43); and that so distributed the yearly charge will amount to no more than from one to one and a half per cent. on the present annual revenue from the lands to be subjected to the operations, which including Jody or Quit rent on certain Enams, may be taken at 320 lacs.

11. We have submitted our proceedings on this important subject to the Government of India for their orders; and in recommending to their early and favorable attention the propositions sketched out by us as to the course to be followed, we have solicited their assistance and advice as to the details of the Establishments both for the Survey and Settlement. And we intend as soon as we are furnished with the

information asked for, and with the views of the Supreme Government on the general propositions, to submit for their sanction more detailed Statements of the Establishments required. Meanwhile, we beg to report our Proceedings for the information and approval of your Honorable Court.

12. For facility of reference we have caused the papers on this subject to be printed, and we now beg to forward ten printed copies of our proceedings.

FORT SAINT GEORGE,
11*th October*, 1855.

Letter from Colonel C. E. FABER, Chief Engineer in the D. P. W. in charge of the late Depy. Surv. Genl's. Dept.; to the Secretary to Government, Revenue Department; dated Fort Saint George 10*th March* 1856.

SIR.

With reference to the correspondence noted in the margin,* I have the honor to forward herewith a list of memoirs, &c., selected from the G. T. Survey Records of Colonel Lambton's at Calcutta, and which it is very desirable should be added to the Records of this department either in original or transcript.

* *Revenue Department.*
Ex. Min. Con. 3*d Oct.* 1855, No. 1110
do. do. do. 27*th Feb.* „ 221

Selections from List of Great Trigonometrical Survey Records of Colonel Lambton furnished by Lieutenant Colonel A. S. Waugh, Surveyor General of India, dated Surveyor General's Field Office Dheradoon 20*th August* 1855.

An account of the method for extending a Geographical Survey across the Peninsula of India, - - - -	Vol. 7 p. p. 312 to 337.
General account of the Survey from 1807 to 1811, - - - -	p. p. 1 to 12.
Description of the great stations forming the principal Triangles, - - -	p. p. 44 to 50.
Secondary Triangles 1st Class, -	p. p. 51 to 58.
Description of the great stations forming the principal Triangles, - -	p. p. 68 to 71.
Description of the great stations forming the principal Triangles, - -	p. p. 151 to 156.
Appendix General Table of Latitudes and Longitudes, - - -	p. p. 245 to 267.

Selections from List of Great Trigonometrical Survey records of Colonel Lambton furnished by Radhanath Sickdhir Chief Computer, dated Surveyor General's Office Calcutta 24th December 1855.

A. 2	An account of the Trigonometrical operations in 1802-3, - -	1 Book.
5	Contained Arcs with Elevations and Depressions, - - - -	1 „
8	Transactions of the Asiatic Society (2 copies), - - - - -	1 „
9	Memoir accompanying the Plan of the Southern Provinces, -	1 „
12	Tables for constructing Maps, -	1 „
13	A set of principal Triangles with the Elevations and Depressions, -	1 „
14	Secondary Triangles, - -	1 „
21	Desultory remarks on the Topography of certain Tracts and Passes in various parts of the Peninsula by Captain Warren, - - -	1 „
A. 37. No. 1	Lieutenant Tulloh's Triangles South of Cuddalore, - -	1 „
2	Lieutenant Hodge's Triangles from the Mullapode Hill to Nellore, -	1 „
3	Lieutenant Garling's Sketch and Triangles at Goa, - -	1½ Sheet.
4	Lieutenant Riddell's Account of the Ramnad Country, - -	4 p. p.
5	Lieutenant Riddell's Description of stations in Travancore, -	2 p. p.
A. 37. No. 6	Lieut. Swinton's Triangles of the Survey of Tranquebar, - -	1 Stitched Book.
7	Lieutenant Bayley's Triangles to accompany the Survey of Negapatam,	2 p. p.
8	Lieutenant Swinton's Observations to accompany the Sketch of the Dominions of Travancore, -	12 p. p.
9	Lieutenant Hodge's descriptive Memoranda of the Shiva Gunga District,	12 p. p.
10	Observations on the Sketch of the Country between Madura and the Coast, - - -	6 p. p.
11	Observations of the Sketch of the country from Palamcottah to Dindigul, - - -	9 p. p.
13	Lieutenant Bayley's observations on the Sketch of the country between Trichinopoly and South Malabar, .	4 Sheets.

A. 37. No. 14	Lieutenant Riddell's Memoir to accompany the Sketch of the Ceded and Nellore Districts, - -	31 p. p.
15	Lieutenant Hodge's Triangles in the Nellore and Ongole Districts,	35 p. p.
16	Lieutenant Hodge's Memorandum to accompany the plan of Triangles of the Nellore and Ongole Districts,	19 p. p.
17	Lieutenant Swinton's Route from Palamcottah to Quilon, -	9 p. p.
18	Lieutenant Swinton's Triangles between Darapooram and Pyney, Coimbatoor and Tinnevelly and in Ramnad, - - -	15 p. p.
19	Captain Warren's Triangles, from Savendroog to Tellichery, -	12 p. p.
20	Captain Kater's Triangles, from Mangalore to Chittledroog, -	39 p. p.
22 and 22½	Captain Kater's Triangles of the Survey of the Pallar River and an account of the same....	25 p. p.
23	Lieutenant Garling's Triangles, between the Nuggery nose and Venketegherry, ...	33 p. p.
24	Lieutenant Garling's Triangles in Goa and Soundah, ..	71 p. p.
A. 38. No. 12	Angles taken about Ramnad and through Travancore and Cochin between the months of October and February 1809-10. ...	1 Book.
41	Angles taken in South Arcot February 1810, Angles taken in South Arcot between February and May 1810, ..	2 Books.
A. 39. No. 1	Extract of the Diary kept at Madras 1805-6, ..	8 p. p.
A. 40. No. 5	Lieutenant Riddell's Triangles in the Ramnad country and the Island of Ramisseram with a description of the station, ..	1 Book.
A. 40. No. 22	Triangles connecting Tutacorin and Ramisseram, also the Principal Triangles through Travancore and Cochin and in Salem and South Arcot,	1 Book.

A. 42	An account of the Trigonometrical operations carried in the Peninsula of India from 1803 to 1806 (Part 2nd.) ...	1 Copy.

CENTRAL OFFICE OF P. W.
LATE DEPY. SURV. GENL. DEPT.
Fort Saint George,
10*th March* 1856.

(Signed) C. E. FABER, Colonel, of Engineers,
Chief Engineer in the D. P. W.
in charge of the late Deputy
Surveyor Genl's Department.

Letter from J. *D.* BOURDILLON, *Esq., Secretary to the Government of Fort Saint George; to C.* BEADON, *Esq., Secretary to the Government of India; dated* 27*th March* 1856.

SIR,

To Govt. of India	2d *July* 1855,	*No.*	786	
From Do.	14*th Sept.*	„	„	1158
To Do.	26*th Oct.*	„	„	1190
From Do.	1*st Feb.*	1856,	„	208

Referring to the correspondence noted in the margin, I am directed by the Right Honorable the Goveror in Council to forward a list prepared by the Chief Engineer of papers included in the records of the Great Trigonometrical Survey, which he considers it desirable should be added to the records of the Deputy Surveyor General's Department under his charge; and to request that with the permission of the Government of India, this Government may be furnished, either in original or in transcript, with the papers specified, to be transferred to the Chief Engineer accordingly.

Extract from the Proceedings of the Most Noble the Governor General of India in Council in the Military Department under date the 21st of January 1856, No. 667.

Read a letter from the Deputy Surveyor General, No. 554 A, dated 24th December 1855, forwarding a list drawn up by the Chief Computer of the Great Trigonometrical Survey Records of Colonel Lambton's time, now forthcoming in the Computing Office.

Ordered, that a copy of the list above referred to be forwarded to the Home department for transmission to the Government of Madras,

with reference to the Extract from that Department, No. 1,433, dated 17th November 1855.

(True Extract.)

(Signed) R. J. H. BIRCH, Colonel,
Secretary to Govt. of India in the Mily. Dept.

List of G. T. Survey Records of Col. Lambton's time forthcoming in the Computing Office.

A. 2	An account of the Trigonometrical operations in 1802-3, ...	1 Book.
3	Place Book of the Great Trigonometrical Survey (Vol. 2d) ...	1 "
4	Triangles in the Nizam's Dominions (Nos. 1 and 2,) ...	2 "
5	Contained Arcs with Elevations and Depressions, ...	1 "
6	An account of the Measurement of an Arc on the Meridian in 1808-9 from Lat. 8° 9' 38" to 10° 59' 49", being a continuation of the Arc commenced in 1804, and extending to 14° 6' 19", ...	1 "
8	Transactions of the Asiatic Society (2 Copies), ...	2 "
9	Memoir accompanying the Plan of the Southern Provinces, ...	1 "
11	Transactions of the Asiatic Society containing an account of experiments on Terrestrial Refraction (by Capt. Warren,) ..	1 "
12	Tables for constructing Maps, ...	1 "
13	A set of Principal Triangles with the Elevs. and Depressions, ..	1 "
14	Secondary Triangles, ...	1 "
15	Monthly Abstracts of Pay from January 1820 to May 1825, ...	1 "
16	Traverse Tables, ...	2 "
A. 18	Meteorological Papers for September 1823, ...	7 Nos.
19	Travers Tables (bound), ...	1 Book.
21	Desultory remarks on the Topography of certain Tracts and Passes in various parts of the Peninsula by Capt. Warren, ...	1 "
22	Place Books Nos. 1, 3, 4, 6, 7, 8, 9, .	7 "

23	Unfinished copies of the Reports Vols. 5th & 6th (3 Parcels), ...	3 Copies.
24	Place Books Nos. 1, 2 and 3,	4 Books.
25	Calculations of the Zenith distances of Stars at all the Stations of Observations, &c., &c., (stitched in parchment), ...	6 ,,
28	Large Theodolite Field Books, ..	9 ,,
29	Circular Instrument Field Books,...	17 ,,
29½	A Field Book, ...	1 ,,
30	Principal Triangles from Peelkher to Seronge, ...	1 ,,
31	Experiments for the comparison of the chains with the Brass Standard Measure, ...	1 ,,
32	Observations of Zenith distances, ...	1 ,,
A. 37 No. ½	Angles and Triangles in the Ceded Districts, ...	1 Stitched Book.
1	Lieut. Tulloh's Triangles South of Cuddalore, ...	1 Book.
2	Lieut. Hodge's Triangles from the Mullapode Hill to Nellore. ...	1 ,,
3	Lieut. Garling's Sketch and Triangles at Goa, ...	1½ Sheet.
4	Lieut. Riddell's Account of the Ramnad Country, ...	4 p. p.
5	Lieut. Riddell's Description of Stations in Travancore, ...	2 p. p.
A. 37 No. 6	Lieut. Swinton's Triangles of the Survey of Tranquebar, ...	1 Stitched Book.
7	Lieut. Bayley's Triangles to accompany the Survey of Negapatam, ...	2 p. p.
8	Lieut. Swinton's Observations to accompany the Sketch of the Dominions of Travancore and Cochin,...	12 p. p.
9	Lieut. Hodge's descriptive Memoranda of the Shiva Gunga District, ...	12 p. p.
10	Observations on the Sketch of the Country between Madura and the Coast, ...	6 p. p.
11	Observations on the Sketch of the Country from Palamcottah to Dindigul, ...	9 p. p.
12	Lieut. Swinton's Secondary Triangles 1st class, ...	8 p. p.
13	Lieut. Bayley's Observations on the Sketch of the country between Trichinopoly and South Malabar,...	4 Sheets.

A. 37 No. 14	Lieut. Riddell's Memoir to accompany the Sketch of the Ceded and Nellore Districts, ...	31 p. p.
15	Lieut. Hodge's Triangles in the Nellore and Ongole Districts, ...	35 p. p.
16	Lieut. Hodge's Memorandum to accompany the Plan of Triangles of the Nellore and Ongole Districts,...	19 p. p.
17	Lieut. Swinton's Route from Palamcottah to Quilon. ...	9 p. p.
18	Lieut. Swinton's Triangles between Darapooram and Pynea, Coimbatore and Tinnevelly and in Ramnad, ...	15 p. p.
19	Capt. Warren's Triangles from Savendroog to Tellicherry, ...	12 p. p.
20	Capt. Kater's Triangles from Mangalore to Chittledroog, ...	39 p. p.
21	Another copy of part of the above work, ...	17 p. p.
22 and 22½	Capt. Kater's Triangles of the Survey of the Pallar river and an account of the same, ...	25 p. p.
23	Lieut. Garling's Triangles between the Nuggery nose and Venketigherry, ...	33 p. p.
24	Lieut. Garling's Triangles in Goa and Soundah, ...	71 p. p.
25	Capt. Gerrard's Lats. and Longs. with Barometrical heights and a Sketch from Bhopal to Agra, ...	3 Sheets.
A. 38 No. 1	Observations on the Sun &c., at Perioypatam and Pondicherry with the Circular Instrument for Refraction 1809-10, ...	10 p. p.
2	Observations of the Pole Star and Observations of the Sun for Refraction between April and September 1810, ...	32 p. p.
3	Observations of the Sun &c. for Lat. and Refraction at Pondicherry, Masulipatam, between December 1810 and February 1813, ...	110 p. p.
4	Observations of the Sun and Star sirins for Refraction, also Observations of Zenith distances at Bellary in 1813, ...	40 p. p.
A. 38 No. 5	Angles taken in February and July 1808 (in 2 Books A and B), ...	2 Books.

6	Angles taken in June and July 1808,...	1 Book.
7	Angles in the environs of Trichinopoly (small Theodolite Nos. 1 and 2),...	2 "
8	Angles taken in Sept. and Nov. 1808 Marked A. and B, ...	2 "
9	Angles taken between Nov. and Jan. 1808-9 marked, A and B, ...	2 "
10	Angles taken between Jan. and Oct. 1809 marked B, ...	1 "
11	Angles taken with the small Theodolite in 1809, ...	1 "
12	Angles taken about Ramnad and through Travancore and Cochin between the months of October and Feb. 1809-10, ...	1 "
13	Angles taken between December and February 1809-10, ...	1 "
14	Angles taken in South Arcot February 1810, Angles taken in South Arcot between February and May 1810, ...	2 "
15	Angles taken in Travancore between February and June 1810 A, and B...	2 "
16	Angles taken between June and August 1810 A, and B, ..	2 "
17	Angles taken between March and May, ...	2 "
18	Sketches referring to the 5th Section of the General Report Volume 1.,...	Nos. 2.
A. 39 No. 1	Extract of the Diary kept at Madras 1805-6, ...	8 p. p.
2	Observations of Zenith distances of Stars for determining the Latitude of the Madras Observatory 1806-7...	1 Book.
3	Zenith distances of the Sun and Stars at Pondicherry 1810, ...	1 "
4	Observations of the Comet; also Observations of the Sun for Refraction, ...	1 "
5	Observations of the Sun's Transit at Hydrabad in 1814-15, ...	1 "
6	Observations of Zenith distances at Damarzidda and Takelkhera in 1815-22.	1 "
A. 39 No. 7	Measurement of Base Lines near Negapatam and Tanjore 1808, ...	1 "
8	Base Line near Negapatam 1808, ...	1 "
9	Do. Palamcottah 1809 (Nos. 1 & 2)	2 "
10	Do. Guntoor 1812, ...	1 "

	11	Base Line near Kamptee 1813-14 (Nos. 1 & 2), ...	2 Books.
	12	Do. Beder 1815, ...	1 „
	13	Base Line near Takelkhera 1822 (Nos. 1 and 2), ...	2 „
	14	Do. Seronge 1824 (Nos. 1 and 2),...	2 „
	15	State of the Barometer and Thermometer taken during the Observations of the Zenith distances of Stars at Takelkhera 1824. ...	1 „
	16	Rough Book of the Transits of Stars at Takelkhera 1824 (4th to 21st February 1824), ...	1 „
	17	Times of Stars observed by the Zenith Lector, ...	1 „
	18	Transits of Stars at Takelkhera (4th to 8th Feb. 1824), ...	1 „
	19	Transits of Stars at Takelkhera (12th to 17th Feb. 1824), ...	1 „
	20	Do. do at do. (18th to 21st do)...	1 „
	21	Observations of Zenith distances in 1807 and 1809, ...	2 „
	22	Comparisons of the chains 1821 and 1825, ...	3 „
	23	Lieut. Arther's Routes in Travancore 1821 and 1825, ...	6 Sheets.
A. 40 No.	1	Zenith distances of Stars at Damerzidda 1815, ...	1 Book.
	2	Triangles and Traverse Tables marked 1, 2, 3, 4, 5, 6, 7, ...	7 Sections.
	3	Rough copy of Triangles from Puglawaddy to Yettayutty, ...	8 p. p.
	4	Triangles from Triviloor to Tanjore,...	3 p. p.
	5	Lieut. Riddell's Triangles in the Ramnad country and the Island of Ramisseram with a description of the Station, ...	1 Book.
	7	Lieut. Bayley's Triangles from Augt. to Feb. 1809-10 (No. 2), ...	6 p. p.
	8	Lieut. Riddell's Triangles from Nunpotha to Papanassum, ...	10 p. p.
A. 40 No.	9	Lieut. Chevassee's Triangles from Trichinopoly to Coonatoor, ...	8 p. p.
	10	Lieut. Bayley's Triangles from Secundermalli to Rajahmuttum, ...	9 p. p.
	11	Lieut, Bayley's Triangles from Trivandepoorum to Tranquebar and Triviloor to Trichinopoly and Samiaveram, ...	1 Section.

12	Survey of Travancore by Lieutenants Swinton and Riddell, ...	1 Stitched Book.
13	Lieut. Hodge's Triangles from Nagamulli to Trusolus with a description of Stations, also a series of Triangles from Munachpoorum to Sekundermalli, ...	1 Book.
14	Lieut. Chevassee's Triangles from Cuddalore to Nagore, ...	15 p. p.
15	Abstract of expenses from Jan. 1800 to Dec. 1804, ...	1 Book.
16	Do. do. from 1805 to 1808,...	1 „
17	Do. do. from 1809 to 1810, ...	1 „
18	Do. do. from 1811 to Nov. 1812.	1 „
19	Do. do. from Dec. 1812 to July 1815, ...	1 „
20	Do. do. from Augt. 1815 to Dec. 1817, ...	1 „
21	Muster Rolls......	3 „
22	Triangles connecting Tutacorin and Ramisseram, also the Principal Triangles through Travancore and Cochin and in Salem and South Arcot,......	1 „
23	Rough Place Books,...... ...	2 „
24	Triangles and Traverse Tables, ...	1 „
25	Letter Files,......	1 „
26	Secondary Triangles between Ellichpoor and Seronge,........... ...	1 Stitched Book.
28	Horizontal Angles, Observations and Triangles,......	24 p. p.
30	Rough copy of Lats. and Longs. prepared for the table of miles with a paper of the Comparative Lats. and Longs. of the Trigonometrical Survey with Arrowsmith's Map, ...	30 p. p.
A. 41	An account of a proposed method for extending a Geogrophical Survey across the Peninsula of India, ...	1 Copy.
42	An account of the Trigonometrical Operations carried in the Peninsula of India from 1803 to 1806 (part 2d),......	1 „
A. 43	Base Line Books &c.,........ ...	1 Bundle-
44	A parcel of Papers containing Field Books and some Original Materials,........	1 „
45	Field Books of Captain Everest's Observations at Takelkhera,... ...	2 Books.

A.	Observations at Damerzidda in 1815...	1 Book
A.	Dooab Survey Register of Triangles (by Capt. Garling),...... ...	1 „
B'.	Tables of Eastings and Westings from the Meridians of Savendroog &c.,...	1 „
B''	Secondary Angles,...... ...	1 „
	Captain Garling's Triangles,... ...	1 Bundle.

(Signed) RADHANATH SICKDHIR,
Chief Computer.

Surveyor General's Office,
24th December 1855.

(True Copy.)

(Signed) R. J. H. BIRCH, Colonel,
Secy. to the Govt. of India in the Mily Dept.

No. 208.

Copy forwarded to the Government of Fort Saint George, with reference to Mr. Secretary Bourdillon's letter No. 1190, dated the 26th October last.

Fort William,
Home Department,
1st *February* 1856.

(Signed) CECIL BEADON,
Secy. to the Govt. of India.

Extract Minutes Consultation, dated 27th February 1856, No. 221.

Ordered to be communicated to the Chief Engineer in the Department of Public Works, with reference to his letter of the 13th October 1855, No. 165.

(Signed) J. D. BOURDILLON,
Secretary to Government.

Letter from Colonel C. E. FABER, Chief *Engineer in the D. P. W. in charge of the lateDepy. Surv. Genl's. Deptt. No.* 178 ; *to the Secretary to Government, Revenue Department; dated Fort Saint George* 10*th March* 1856.

SIR,

* *Revenue Department.*
Ex. Min. Col. 3d Oct. 1855, *No.* 1110
Do. do. do. 27*th Feb.* 1856, „ 221

With reference to the correspondence noted in the margin,* I have the honor to forward herewith a list of memoirs, &c., selected from the G. T. Survey

Records of Colonel Lambton's at Calcutta, and which it is very desirable should be added to the Records of this department either in original or transcript.

Selections from List of Great Trigonometrical Survey Records of Colonel Lambton furnished by Lieutenant Colonel A. S. Waugh, Surveyor General of India, dated Surveyor General's Field Office Dheradoon 20th August 1855.

An account of the method for extending a Geographical Survey across the Peninsula of India, ...	Vol. 7 p. p. 312 to 337.
General account of the Survey from 1807 to 1811, ...	p. p. 1 to 12.
Description of the great stations forming the principal Triangles, ...	p. p. 44 to 50.
Secondary Triangles 1st Class, ...	p. p. 51 to 58.
Description of the great stations forming the principal Triangles, ...	p. p. 68 to 71.
Description of the great stations forming the principal Triangles, ...	p. p. 151 to 156.
Appendix General Table of Latitudes and Longtitudes, ...	p. p. 245 to 267.

Selections from List of Great Trigonometrical Survey Records of Colonel Lambton furnished by Radhanath Sickdhir Chief Computer, dated Surveyor General's Office Calcutta 24th December 1855.

A. 2	An account of the Trignometrical operations in 1802-3, ...	1 Book.
5	Contained Arcs with Elevations and Depressions, ...	1 „
8	Transactions of the Asiatic Society (2 copies), ...	1 „
9	Memoir accompanying the Plan of the Southern Provinces, ...	1 „
12	Tables for constructing Maps, ...	1 „
13	A set of principal Triangles with the Elevations and Depressions, ...	1 „
14	Secondary Triangles, ...	1 „
21	Desultory remarks on the Topography of certain Tracts and Passes in various parts of the Peninsula by Captain Warren, ...	1 „
A. 37 No. 1	Lieutenant Tulloh's Triangles South of Cuddalore, ...	1 „

	2	Lieutenant Hodges, Triangles from the Mullapode Hills to Nellore, ...	1 Book.
	3	Lieutenant Garling's Sketch and Triangles at Goa, ...	1½ Sheet.
	4	Lieutenant Riddell's Account of the Ramnad Country, ...	4 p. p.
	5	Lieutenant Riddell's Description of stations in Travancore, ...	2 p. p.
A. 37 No.	6	Lieut. Swinton's Triangles of the Survey of Tranquebar,... ...	1 Stitched Book.
	7	Lieutenant Bayley's Triangles to accompany the Survey of Negapatam,......	2 p. p.
	8	Lieutenant Swinton's Observations to accompany the Sketch of the Dominions of Travancore,... ...	12 p. p.
	9	Lieutenant Hodges, descriptive Memoranda of the Shiva Gunga District,......	12 p. p.
	10	Observations on the Sketch of the Country between Madura and the Coast,......	6 p. p.
	11	Observations of the Sketch of the country from Palamcottah to Dindigul,......	9 p. p.
	13	Lieutenant Bayley's observations on the Sketch of the country between Trichinopoly and South Malabar,...	4 Sheets.
A. 37 No.	14	Lieutenant Riddell's Memoir to accompany the Sketch of the Ceded and Nellore Districts,...... ...	31 p. p.
	15	Lieutenant Hodges, Triangles in the Nellore and Ongole Districts,... ...	35 p. p.
	16	Lieutenant Hodges, Memorandum to accompany the plan of Triangles of the Nellore and Ongole Districts,......	19 p. p.
	17	Lieutenant Swinton's Route from Palamcottah to Quilon,... ...	9 p. p.
	18	Lieutenant Swinton's Triangles between Darapooram and Pyney, Coimbatoor and Tinnevelly and in Ramnad,......	15 p. p.
	19	Captain Warren's Triangles, from Savendroog to Tellicherry,... ...	12 p. p.
	20	Captain Kater's Triangles, from Mangalore to Chittledroog,...... ...	39 p. p.

22 and 22½	Captain Kater's Triangles of the Survey of the Pallar River and an account of the same,... ...	25 p. p.
23	Lieutenant Garling's Triangles, between the Naggery nose and Venketegherry,...	33 p. p.
24	Lieutenant Garling's Triangles in Goa and Soundah,...	71 p. p.
A. 38 No. 12	Angles taken about Ramnad and through Travancore and Cochin between the months of October and February 1809-10,...... ...	1 Book.
14	Angles taken in South Arcot February 1810. Angles taken in South Arcot between February and May 1810,......	2 Books.
A. 39 No. 1	Extract of the Diary kept at Madras 1805-6,......	8 p. p.
A. 40 No. 5	Lieutenant Riddell's Triangles in the Ramnad country and the Island of Ramisseram with a description of the station,......	1 Book.
A. 40 No. 22	Triangles connecting Tutacorin and Ramisseram, also the Principal Triangles through Travancore and Cochin and in Salem and South Arcot,.	1 Book.
A. 42	An account of the Trigonometrical operations carried in the Peninsula of India from 1803 to 1806 (Part 2nd.),......	1 Copy.

CENTRAL OFFICE OF P. W.
LATE DEPY. SURV. GENL. DEPT.
Fort Saint George,
10*th March* 1856.

(Signed) C. E. FABER, Colonel of Engineers, Chief Engineer in the D. P. W. in charge of the late Deputy Surveyor General's Department.

Letter from J. D. BOURDILLON, Esq., Secretary to the Government of Fort Saint George; to C. BEADON, Esq., Secretary to the Government of India; dated 27th March 1856. *No.* 329.

To Govt. of India 2d *July* 1855, *No.* 786
From Do. 14*th Sept.* ,, ,, 1158
To Do. 26*th Oct.* ,, ,, 1190
From Do. 1*st Feb.* 1856, ,, 208

SIR,

Referring to the correspondence noted in the margin, I am directed by the Right Honorable the Governor in Council to forward a list

prepared by the Chief Engineer of papers included in the records of the Great Trigonometrical Survey, which he considers it desirable should be added to the records of the Deputy Surveyor General's Department under his charge; and to request that with the permission of the Government of India, this Government may be furnished, either in original or in transcript, with the papers specified, to be transferred to the Chief Engineer accordingly.

Letter from Colonel C. E. FABER, Chief Engineer; to J. D. BOURDILLON, Esq., Secretary to Government D. P. W., dated 26th July 1856, No. 5252.

SIR,

As the various Reports on important Public Works, executed during the year 1855-56, still to be received from the several Districts in the interior, will have to be summarized and compiled into one general Report in this office, an operation that will necessarily require a good deal of time and attention, in order to prepare it for publication in the printed Records of the Madras Government, it has appeared to me proper to place at once before Government, for early special consideration, the two Reports that have been received from the officers in charge of the Deltas of the two great rivers the Godavery and the Kistnah.

2. Unfortunately the instructions to substitute the official for the calendar year, in order to maintain a closer relation to the annual Budgets have been equally overlooked by both Captain Orr and Captain Rundall; but as supplementary Statements bringing down the narrative of operations and expenditure to the 30th April, have been called for, it is to be hoped that the Reports will be sent up in a complete shape, when all the others are hereafter submitted to Government.

3. Meanwhile however, I have been mainly induced to exempt these two Reports from the otherwise unavoidable delay in the Central office, on account of the very interesting and important remarks which are herein placed on record, regarding the positive necessity of a Revenue Survey in both Deltas, for defining the amount of revenue from irrigated land, and for protecting the interests of Government. The probable extent and the manner in which the latter have already suffered in the Rajahmundry Collectorate, and the not only probability, but certainty, that concurrently with the rapidly increasing general

material prosperity of the District and its agricultural classes, will be the relative rateable loss of land revenue, are most forcibly stated by Captain Rundall. If, on the one hand, the picture drawn by this zealous officer of the rapid and undeniable general improvement of the Delta of the Godavery is highly gratifying, so on the other hand, as it seems to me, is it hardly less mortifying, that through defective fiscal arrangements, no corresponding increase has been made to the land revenue.

4. In the Kistnah Division, the case appears to be one of less injustice and urgency, but it seems desirable that the two Reports should be considered together.

5. I have to add that the very same subject of a Revenue survey, as indispensable to the developement of the extraordinary capabilities of Ganjam as a sugar growing District, has just been most pithily and vigorously handled by Lieutenant Colonel F. Cotton in the Journal of his recent tour of inspection ; and it would appear as if, notwithstanding the allegations of our tardy introduction of Public Works, it even now would be premature to avail ourselves of the facilities for their construction in Ganjam, whilst in the Deltas of the Godavery and the Kistnah, the progress of hydraulic works and the immense expenditures in those Districts are far ahead of the Revenue arrangements belonging to a different branch of the Government administration.

6. The further professional examination of the Reports now forwarded will be deferred until the usual period, and the several Revenue and Public Works expenditure Statements promised by Captain Rundall, but not sent in order to have their correctness more fully tested by the Collector's scrutiny, will be forwarded immediately that they reach this office.

P. S.—I have thought it better to now forward a copy of the Journal by Lieutenant Colonel F. Cotton, to which reference has been made in para. 5, than to detain it for my own remarks.

(Signed) C. E. FABER, Colonel.
Chief Engineer.

Letter from J. D. BOURDILLON, Esq., Secretary to the Government of Fort St. George ; to C. BEADON, Esq , Secretary to the Government of India ; dated 22nd August 1856 ; *No.* 890.

SIR,

Para. 1. With my letter of the 22d September 1855, No. 1073, I transmitted for the consideration and orders of the Government of India, an Extract from the Proceedings of this Government dated August 14th, 1855, containing their views on the subject of a general Revenue Survey of this Presidency. The necessity of such a measure was briefly noticed, and a few facts were stated to prove it, and steps which this Government would advocate for the attainment of the end sought were detailed, together with an estimate of the cost. No orders have yet been received in reply. This Government much regrets that a subject of such vital importance both to the welfare of the people and to the prosperity of the revenue of these Provinces should have remained so long in abeyance ; but the object with which I am now directed to address you, is not to enter again on the general subject, but only to lay before the Right Honorable the Governor General in Council some papers which have now come before this Government, tending to illustrate the great importance of a survey as respects the revenue.

2. In the Proceedings above referred to, the Districts of Rajahmundry and Ganjam were specially mentioned (paras. 3 and 7) among those in which the existing information respecting the land is most defective ; and the papers which I have first to notice relate to those Provinces. The District Engineer of Rajahmundry in his annual Report treats of the extent of land now watered by the annicut channels, and of the general prosperity of the District in consequence of those works. The water is every where gladly made use of as soon as supplied ; and Captain Rundall estimates the extent irrigated at 6,00,000 acres. A variety of circumstances, particularly the great increase of exports by sea, the striking expansion of the traffic on the canals, the increased number of trading Establishments, the new and prosperous enterprises undertaken, the rise in the wages of labour, and the activity everywhere observable, bear witness to the flourishing condition of the Province. Although so little has yet been done directly to make this new prosperity contribute to the revenue, yet its effect is strikingly conspicuous even there ; and the average of the yearly collections since the annicut

was commenced exhibits an excess of nearly four and a half lacks of Rupees, in comparison with that of the fifteen years which preceded the commencement of the works.

3. But what I am now to point out is, that in the absence of any trustworthy record of the extent and qualities of the land, it has hitherto been found impossible to make any considerable progress in levying a charge for the use of the water supplied. Till within ten or twelve years ago, Rajahmundry was under a permanent settlement, and no survey was required for the revenue administration. As the large proprietary estates gradually fell into Government, a system of joint village rents was adopted as the most convenient in the absence of a knowledge of the resources of the land, and as an intermediate arrangement pending the execution of a Revenue Survey ; and this system still continues. But the tenure and occupancy of land are in much confusion ; and so little is known even of its extent, there being not even a uniform land measure, that it has hitherto been found impracticable to assess any water rate except in a very limited portion of the District ; and the greater part of the increase in the land Revenue above noticed, arises from extended occupation of land.

4. What is required is a careful Revenue survey and assessment, such as is contemplated in the paper of the 14th August above referred to. That double operation by ascertaining the resources of the land and by fixing the assessment at moderate and equal rates, would greatly encourage the extension of cultivation, increase the revenue, and promote the prosperity of the District. The Governor in Council is not prepared to adopt the whole of Captain Rundall's calculations in para. 53 ; but in the main, and subject to more or less deduction, they are certainly correct. It is difficult to form an exact judgment of the amount of revenue fairly to be expected from the Godavery Delta under the new irrigation ; but comparing it with Tanjore, it appears to the Governor in Council that it may safely be stated at the sum of at least eight or ten lacks yearly in excess of the present revenue ; and this therefore is the sum which must be set down as the direct and positive loss, incurred every year in the single District of Rajahmundry (with a small part of Masulipatam,) through the want of a Revenue survey. If the cost of a Survey and assessment, as computed in para. 42 of the paper of the 14th August, can be taken as a guide, and the calculation was framed on liberal data,

then there seems no doubt that the whole cost of these operations over the whole Presidency, being seventy six lacks of Rupees to be spread over fifteen or twenty years, would be repaid by the increased revenue of only eight or ten years, in the Godavery Delta alone.

5. The second paper now forwarded is an extract from a Report drawn up by Lieutenant Colonel F. C. Cotton, Deputy Chief Engineer, on a tour on duty which he made in the early part of the present year in the District of Ganjam. The paragraphs in this extract relate to the extreme absence of information in that District respecting the extent and quality of the land. Colonel Cotton notices that bad as matters are in other Districts in this respect, in Ganjam they are vastly worse ; and he points out that as a consequence of this ignorance, the works of irrigation for which the formation of the country affords peculiar facilities, cannot be undertaken on any sure grounds as to the return to Government for the outlay, notwithstanding the absolute certainty that such works would be productive of enormous benefit to the ryots. Thus, while in Rajahmundry the want of a Revenue survey directly prevents the Government from realizing fair returns for works already constructed, and at the same time from so adjusting the demand as to encourage the occupation of land ; in Ganjam the same want is stated by an able and earnest advocate for the extension of irrigation for delaying to undertake works of that character, in a part of the country eminently well suited to them ; and where they would be the source of much wealth, and under a good system, of a large increase of revenue to Government.

6. The object of the present letter, as already explained, is to bring the facts above treated of under the notice of the Government of India. The Right Honorable the Governor in Council trusts that they will receive due consideration. It must be remembered however, that the two Districts referred to are exceptional in degree only, not in kind ; it may even be doubted whether the case of Ganjam bad as it is, is not exceeded by those of Masulipatam and Nellore ; whether a survey is not more urgently required in both the latter Districts than in the former. In all these, however, and in minor degrees in every District of this Presidency, a survey is pressingly required, and there can be no doubt that the want of the information which can alone be furnished by a survey, is the cause of a loss to the revenue of many lacks yearly.

7. It occurs to Government as possible that the anticipation expressed in para. 31 of the order of the 14th August, of a fall in the re-

venue of the Districts operated on, as a first effect of the survey, may have had some effect in deterring the Government of India from passing any orders on the subject. But the considerations stated in the succeeding four paragraphs appear fully to support the conclusion at which this Government arrived, that the result on the whole would not be a loss of revenue at any time, but a positive gain. The circumstances of Rajahmundry and Ganjam treated of in the present letter, abundantly uphold the same conclusions; showing the certainty of a large gain of revenue, not indeed as a consequence of the survey operations only, but as their result as ancillary to irrigation improvements.

8. But another still more striking case and more decidedly in point, and one too of actual fact and not of anticipation, may now be produced, viz., that of the District of South Arcot. In that District very large reductions in the rates of land assessment were authorized by this Government in 1854, in consequence of proof of the burdensomeness of the existing rates.* The reduction averaged as much as 25 per cent. on the wet or irrigated lands, and 33 per cent. on the dry or unirrigated. These measures came into practical operation in the revenue year 1264 (1854-55), when a sum of above six and a half lacks of Rupees was struck off the demand of the year. The result, as was to be expected, was a deficit in the revenue for that year; but though the year was one of much drought, this deficit amounted to no more than 1,24,000 Rupees in comparison with the revenue of the preceding year, which however had been of a still more disatrous character. In the succeeding year (Fusly 1265) the ryots had had time to take advantage of the change in the rates; and so elastic was the spring of activity in consequence of the relief from pressure, that the revenue at once recovered itself. The small Statement enclosed shows the result. The land revenue settlement in Fusly 1265 was the highest of the last ten years, with three exceptions, and was far above the average; the settlement of all branches of revenue was the highest with a single exception; and the actual collections exceeded those of any year in the ten, very nearly the whole demand having been realized within the Fusly, besides former arrears. Such is the result of the large reduction of demand in South Arcot, in the first year after it took effect; and there can be no doubt that the Collector is right in anticipating a large increase of revenue in the course of a few years, above the former standard. And with

* See No. 22 of the Selections from the Records of this Government transmitted to the Government of India on the 29th January 1856.

such results to point to, in a District where the reductions required were larger than in any other, the Governor in Council feels that he is warranted in declaring his conviction that the measures proposed in the paper already alluded to will not diminish but will augment the revenue, and in urging on the Government of India not longer to withhold their sanction to those measures.

Extract from a Report from Captain T. H. RUNDALL, District Engineer, Godavery Division; dated 30th June 1856.

49. Statement No. 1 exhibits the total expenditure in the District on Public Works for the past 10 years together with the demand and collection of revenue for the same period. The yearly increase of the latter over the quinquennial average of the previous 15 years, marks the increasing prosperity of the District beyond question, independent of any opinion as to the immediate cause of that prosperity. It is much to be regretted that the land tenure in vogue in the District, renders it next to impossible to ascertain the actual saleable value of the land, but a general idea may be formed from the fact, that whereas at the commencement of the work it was easy to afford compensation in kind to Enamdars, it is now with the greatest difficulty the Revenue authorities can effect it, owing to the greatly enhanced value each ryot attaches to his holding. Money compensation is therefore recommended, but it does not prove so acceptable to the Enamdar as an equal portion of any irrigated land. Were the Ryotwarry system in force, and the actual extent of each holding unalterably defined by a Revenue survey, the sales registered in the Collector's Cutcherry would at once afford a positive proof of the value of the land, but the advantage of giving a marketable value to the soil is lost in the existing arrangement.

50. The absence of a survey also renders it difficult to state with exactness, the actual area irrigated, but to this Department the extent commanded by each channel and the supply daily passing down each is well known, while the quantity escaping over the last weir into tidal water is easily ascertainable. The difference between the two gives the amount actually drawn off by the cultivators to their fields and is a measure of the area of the land irrigated, which during the past year cannot be less than 6,00,000 acres for one crop, and one third of that quantity for two crops.

51. The value of the crop raised off the above area of land during the past year may be estimated as follows.

52. From several trials, one Pootty (8 acres) has been found to yield from as much as 25 to as low as four Pootties of paddy, the general average of the District may therefore be safely taken at 12 Pootties (equal to one and a half Pooty) per acre for the first crop, and ten for the second.

53. The total quantity of grain raised off the Delta at the above calculation, cannot be less than 1,150,000 Pootties. The selling price, during the past year has amounted to 16 Rupees per Pooty for the produce of the first Crop, and 14 for that of the second. The gross value of the rice crop, during the past year in the Delta would thus amount to 144 lacs for the first crop, and 35 lacs for the second. The average rent of wet lands over the whole District is about 3 Rupees per acre, while the expences of the cultivation for the two crops do not exceed 9 Rupees per acre. Deducting these amounts, viz., 18 lacs for the rent and 38 lacs for the expenses of cultivation, or a total of 56 lacs, will leave as the net profit of the past year to the holders of the soil 123 lacs as derived from paddy cultivation alone. The prices of the past year have certainly been very high and a continuation of these could not be fairly looked for, but even diminishing it by one-fourth will show how large an amount of property is dependent on the works, although only three-fourths of the whole Delta is estimated as fully irrigated.

54. The traffic along the Canals, ascertained from registers kept at the heads and principal locks, has this year amounted to 72,163 tons, besides 2,489 rafts of wood and bamboos entered at Rupees 1,51,841. The total value of this traffic reckoned at the prevailing prices each month amounts to Rupees 16,69,068. This return is exclusive of the intermediate traffic and that across the Colair Lake.

55. Statement No. 2, exhibits the trade from the various ports in the District and shows a most gratifying increase over that of last year. It will be observed that the amount of exports and imports during the past official year amounts to Rupees 24,81,491 against Rupees 20,73,488 in 1854-55, notwithstanding a diminution in the export of the most important article of sugar to the extent of Rupees 2,67,906. This last is accounted for by a large portion of the quantity manufactured during the past year not having been shipped till after the 30th April last, and consequently not appearing in the returns for the year under review.

56. Besides the profits to the cultivators as shewn in prices, that of saving in transport is to be added. Seeing that the principal canals have now been open free of all charge to the public for more than 4 years, I think the Government may legitimately for the future raise revenue from them, but the mode of raising that revenue whether by exacting a toll from all boats passing through the locks, or by fixing a boat tax and by allowing none but registered boats to pass, is a question that need not be entered into here.

57. Another point to which I would beg to draw attention is the use made of the canals for travelling.

58. A small Company was started in the year 1853, on a capital of Rupees 10,000, for the purpose of running transit boats to the port of Cocanada from Dowlaisweram. Though towed only by men, and not travelling at more than 3 miles per hour, the accommodation was so largely taken advantage of that the dividends of the Company during the first year amounted to twenty per cent. The following year a second line of canal, viz., that to Samulcottah was opened, and the dividends increased to 25 per cent. on the original capital.* Finding how eager the people of the District were to avail themselves of water carriage, the Company have resolved to increase their capital to a lac of Rupees, and to extend their operations to all the main channels of the District besides having entered into arrangements to work a large Steam Ferry across the Godavery at Rajahmundry, in lieu of the present small one now in operation.

* A third dividend has since been made at the rate of 50 per cent.

59. A third canal, viz., that to Coringa has lately been taken up; and I hope ere this time next year that the Central and Western Delta may likewise be worked by this Company.

60. The number of passengers average monthly 2,500* on the Cocanada, and 800 on the Samulcottah canals.

* The boats not being capable of holding a greater number.

61. The trade of boat building is largely increasing; the demand for timber of all sorts is now so great, that the price is nearly double what it was 10 years ago, and the wages of artificers as well as that of common labourers is nearly one half as high again as formerly.

62. Within a few years ago there were but three merchants at Cocanada. There are now about 15 separate agencies, and the Collec-

tor is receiving intimation from Calcutta and elsewhere of the desire on the part of mercantile Houses to establish branch Firms at Cocanada, and soliciting information as to the facilities for doing so. The activity at the port is shewn by the amount of shipping during the past year having increased to 75,000 tons against 54,000 tons in the previous year. This trade it must be borne in mind is that of the Rajahmundry District alone, comprising a narrow tract along the coast; and is not the result of any communication opened up into the Interior, the Godavery being to all intents and purposes closed to traffic. Let that grand line be once brought into working order, and the harbours of Rajahmundry would ere long be the resort of 20 times the above amount of shipping.

Extract from a Report from Lieutenant Colonel F. C. COTTON, Deputy Chief Engineer, dated 12th July 1856.

IRRIGATION WORKS SUGGESTED.

62. In Captain Rundall's Report upon the irrigation of Ganjam (of 30th October 1854,) some valuable suggestions are offered as to the works that should be immediately undertaken; but there will be a difficulty in carrying out these proposals, or indeed in making any great improvement in the irrigation of the District, if some steps are not taken to obtain information as to the area and condition of the wet land at the present time; and the value of a supply of water for one or more crops. There is but little known on these subjects in many Districts, but in Ganjam there is the most profound ignorance on every point connected with the extent cultivated, and the value of its produce; nor under the present system, does there appear to be the least chance of any better information being obtained. Mr. Elliot in a letter to the then Collector, wrote in March 1850 suggesting that it would be advisable rather to fall back upon an ancient division and registry of the land which had been lost sight of, than to allow things to remain as they were; but this was not carried out, and when Captain Rundall proposed to open a channel from an annicut on the Aska river, to water the Country between Aska and Munsoorcottah, he was led to suppose by the Thasildar that an additional Revenue of 50,000 Rupees might fairly be anticipated from the outlay of a lac. But when a project was prepared, and sent for an opinion, to the Collector, it was stated by the Thasildar of that time, that nothing could be expected beyond the saving of some small remissions of Revenue. Now although the area of cultivable land

had in the first instance been over-rated, there was no doubt whatever that an immense increase of produce would result from the works proposed, and why there should be no Revenue in proportion does not appear. But the truth is, that the word "wet land" has so indefinite a meaning, that it may be given to lands irrigated, or not irrigated, or partially supplied with water, or flooded, and besides that, there is no knowledge whatever what the produce is from lands under any one of these conditions. Land capable of producing by the help of mere rain, a tolerable crop of rice is "wet land;" and so is that which has water for two crops, or is so well provided that it might have a crop of sugar grown upon it; and if there is a Cutcherry "mamool" of what an acre produces, it has been established without any reference to the use made of the land. Whether it is well farmed, or cultivated with the poorest means, the mamool is the same; and if it has any foundation at all, it has no reference whatever to the capability or real value of the land. While this state of things exists, the Engineer Department may spend all the money possessed by the Government with no certainty of any direct returns from their works. The Engineer may survey the land, shew the measured area of what he waters, and point out what is drained, and what secured from flood; but when this is done a statement may be found to prove that it was all "wet land" before, and no extra revenue can be expected from it. The fact of the land not being watered before, will not alter the case, for what is *called* in the accounts "wet" or "dry" no one can point out on the ground.

THE RYOTS KNOW THE REAL VALUE OF IRRIGATION.

63. It is said in a general way that there is no use in irrigating for a second crop, because the Ryots grow a second crop, and never had been taxed for it. Whether that crop is rice, or oil seed scanty or abundant, secure, or precarious, still the people like to have it without tax; they would not, (it is supposed) like to have a crop worth 15 Rupees an acre, if they have to pay an assessment of 2 Rupees, so well as a crop of the value of 5 Rupees, for which they pay nothing. Such is the supposition and a most mistaken one it is. I have seen a good deal of the Hindoo cultivators of the country, and the high price that they are ready to pay when dry land is irrigated has frequently astonished me. But the fact is that they are not so ignorant as we are. They live in their fields and see all that is going on, from day to day, and know right well the exact effect of water on

their crops. They don't confuse between a crop that has yielded a poor harvest and a heavy crop; they see the risk that each field runs, and know the cause of the mischief that they dread, and although there may be a fear among them when any new work is proposed, that it will not succeed and that they will be taxed nevertheless; when the work does succeed, they see the change, and know the value of it; and if they do not say all they know, they are willing enough to own the Government claim to additional revenue and to give it, if too much is not demanded.

It is for us to determine what the value of the improvements is, and to take only such portion of the increase of produce as shall pay us a liberal profit, and leave the Ryots as they will be in all cases, very much greater gainers than the Government. But to do this some trouble must be taken to learn what the land will yield according to the treatment it receives. Mr. Elliot began an inquiry in Rajahmundry with a view to this, which if followed up would have been invaluable; but the information he obtained was thought insufficient, and therefore it was not added to till it was made sufficient, but was laid aside as useless.

IRRIGATION WORKS WILL NOT BE CARRIED ON VIGOROUSLY TILL THEIR REAL VALUE IS DETERMINED.

64. The Ganjam District has from the very favorable distribution of the rain, the form of its surface, and the goodness of its soil, capabilities beyond most parts of the Presidency, and there are admirable opportunities for constructing the most effective and profitable works of irrigation; and as soon as the probable result of them has been determined on the best data procurable by the Revenue Officers, they may be undertaken.

Captain Rundall has suggested some of very good promise, and Major Birdwood is searching for sites in which he can place works especially suited to the cultivation of sugar; but the Revenue Officer must work with the Engineer, each in his own province, or the Government will not get the return it should from the money spent; the upshot of which must be, that the irrigation of the country will be suspended. So completely has the value of irrigation been ignored in Rajahmundry, that in one report it has been shewn, that a Talook without irrigation has yielded a greater increase of revenue than those thoroughly watered. And though it is not probable that such an assertion will be made in Ganjam, I maintain that no money can be securely spent, till such results

of revenue management or Revenue statement are rendered impossible by the produce from irrigation being determined by actual trial. It is absurd to suppose that there can be any real difficulty in obtaining such information. If it could have been had at no less cost, it would have been worth while to have spent 20 lacs of Rupees in procuring it in 1853; for since that time far more than that sum has been lost to the Government, by the doubt which has led to the watered lands of Rajahmundry remaining untaxed.

(True Extracts.)

(Signed) J. D. BOURDILLON,

Secretary to Government.

Statement shewing the settlement and Collection including that of arrears of all branches of Revenue from Fusly 1256 to Fusly 1265 in South Arcot.

Fusly.	Land Revenue.				Extra Sources.				Total.		Remarks.
	Settlement.	Collection within the Fusly.			Settlement.	Collections within the Fusly.			Settlement.	Collections within the Fusly.	
		Current.	Arrear.	Total.		Current.	Arrear.	Total.			
	Rupees.	Rupees.	Rupees.	Rupees.	Rupees.	Rupees.	Rupees.	Rupees.	Rupees.	Rupees.	
1256	24,37,544	23,30,674	93,721	24,24,395	4,95,401	4,79,393	3,887	4,83,280	29,32,945	29,07,675	The revision of Assessment came into operation in Fusly 1264, in which year the following deductions in the settlement were made, exclusive of the road fund.
1257	24,90,747	21,78,014	1,03,434	22,81,448	4,10,912	3,86,136	16,007	4,02,143	29,01,659	26,83,591	
1258	22,30,244	18,72,842	8,01,992	21,74,834	3,87,583	3,52,710	24,660	3,77,370	26,17,827	25,52,204	Rs.
1259	18,62,698	16,96,140	3,52,960	20,49,100	4,89,066	4,30,179	34,693	4,64,872	23,01,764	25,13,972	Ten Hooloos Talooks......... ... 6,17,017
1260	23,40,550	21,95,608	1,68,386	23,63,994	5,06,535	4,91,983	8,886	5,00,869	28,47,085	28,64,863	Resumed Jaghire.................. 5,308 Munnargoody, Chellumbrum
1261	25,22,928	23,58,640	1,46,351	25,04,991	5,07,064	4,76,551	14,560	4,91,111	30,29,992	29,96,102	and Cuddalore................ 60,050
1262	24,21,370	23,23,977	1,66,405	24,90,382	4,56,530	4,30,787	30,510	4,61,297	28,77,900	29,51,679	6,82,375 *Deduct.*
1263	20,75,612	18,74,796	96,077	19,70,873	4,34,502	4,05,419	25,588	4,31,007	25,10,114	24,01,880	2d Crop Nunjah teervah brought to Jummah......................... 19,286
1264	19,51,276	17,50,117	1,91,287	19,41,404	4,25,292	3,90,160	28,890	4,19,050	23,76,568	23,60,454	Net amount remitted in Fusly 1264............................ 6,63,089
1265	24,04,464	22,62,428	2,07,422	24,69,850	5,45,676	5,18,211	34,937	5,53,148	29,50,140	30,22,998	

(Signed) ARTHUR HALL,
Collector.

(True Copy.)

(Signed) J. D. BOURDILLON,
Secretary to Government.

Letter from J. GOLDINGHAM, Esq., Commissioner Northern Circars; to J. D. BOURDILLON, Esq., Secretary to Government Fort Saint George; dated Rajahmundry 6*th December* 1855, *No.* 142.

SIR,

To Gov. 4*th January* 1855.
From do. 1*st June* 1855, *No.* 669.
Extract Mins. Con. 14*th August* 1855.
Regarding a proposal for a survey and revision of assessment.

1. I have the honor to acknowledge the receipt of Extract Minutes of Consultation dated 1st June 1855, regarding the reformation of the Land Assessment in Rajahmundry and Masulipatam. Adverting to the working of a system of collective village rents and joint responsibility, and to the opinion I had expressed that the ryotwar form of settlement should not be longer postponed, the Government require information as to whether there are sufficient data for a field assessment without a survey, and observe that, if such information is now available, whether collected during the currency of joint rents or existing from the first, though not then acknowledged, full consideration will be given to any facts and plan that may be brought forward. The Governor in Council is pleased further to observe that he will be prepared to authorize the course of proceeding in favor of ryotwar settlements, if it can be shewn that a survey is not really essential.

2. It is further asked whether the accounts show the extent of fields and their quality and productiveness, or the rate or amount of assessment fairly leviable upon them, of what degree of credit such information is deserving, and what agency is to be employed for the purpose of determining the assessment on each field. The cost of the operation, the time within which it will be completed and the financial effect of the charge are to be stated.

Sir Thomas Munro, Rev. Set. Vol. III. p. p. 552, 553.

3. Much that is asked above is answered by the rule laid down many years ago that, " The village accounts " always exhibit the detail of the lands, " their distribution among the ryots, their rent, and the extent of the " several fields or shares, either founded on estimate or on some ancient

" measurement, and from such accounts it has long been the custom, in "most parts of India, to make the Ryotwar "settlement." The fact that our Ryotwar settlements generally are based on such data, conjointly with surveys on the Native method where these have been made, is confirmatory testimony. Guntoor, as recently noticed,* is a remarkable instance of a sound revenue administration without the preliminary of a professional survey. In the case of Rajahmundry itself the Government are aware that an individual field assessment is not only practicable, but that the district prospered most, so far back as 1784 to 1791, when that principle of settlement was in force, and that in 1824-25 the settlements throughout the Government portions of the District were ryotwar through the arrangements then in force were afterwards set aside under the lax and feeble management that followed.

To Govt. dated 5th May 1855, reporting on the probable effects of the Godavery and Kistnah Annicuts.

Board's Proceedings 14*th July* 1845, *paras* 41 *to* 45.

4. The testimony of the former Collectors, Messrs. Robertson and Kindersley, to the above facts will be deemed important.

5. In connection with the foregoing, I would ask attention to paras. 64 and 66 of the Proceedings of the Board of Revenue 14th July 1845 noticed in the margin above, which shew that the Board were then of opinion that the collective village rent should resolve itself into an individual settlement at an early period, and that the principle of a settlement by forms should be followed in the case of all large holdings.

6. In its main feature the collective village rent is ryotwar, inasmuch as the aggregate amount is proportioned among the ryots. Complaints of unequal distribution being adjusted through the intervention of the Revenue officers. If these officers have the means of fixing not only an aggregate rent but a fair apportionment of it, they must also possess the means of declaring the rent of each plot of land, and thus adopt ryotwar in its essential requirement of a fixed rent on each field to be paid by the occupant.

7. In accuracy of area or the contests of a field is generally the pretext assigned for the postponement of a sound system of adminis-

tration to a professional survey, but if fields are registered and named, and their contents recorded, either on estimate or some ancient measurement, and if the maximum* rent each field is capable of yielding, with the annual collections on it, for a series of years is known, it must be admitted that the presiding Revenue officer has ample means of making the settlement of his district on sound principles.

* *Kham is the term used in Rajahmundry.*

And this argument acquires additional force when means exist or may be brought forward for correcting inaccuracies of areas.

NOTE.—The paper was drawn up at my request as it appeared to me that the results of his experience should not be lost. Those portions only which are important to the present purpose are submitted.

8. In further elucidation of the subject and of the best means of meeting the wants of the Circar, I beg to forward translation of portions of a paper in Telooogoo drawn up by Royappah, the Commissioner's Sherristadar, on the former and present condition of the Circars, their wants and remedies.

9. After sketching the state of things under Zemindary rule, and the present system and assessment, the latter retaining the great evil of Zemindary management, viz. an excessive standard of demand. Royapah gives a general view of what the demand upon the ryot is and what it should be, and he then proceeds to set forth the principle on which the management should be carried out in future.

Translation para. 41.

10. In regard to the former, viz. the present average demand per acre upon the ryot and what it should be the following general view is exhibited.

		Demand per acre at ⅓ of the gross produce.			Present demand without waste.			Present demand including waste.		
		Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
Dry land.	Rajahmundry	1	10	2	3	...	...	4	4	...
	Masulipatam	...	13	10	1	...	...	1	13	...
	Guntoor	1	5	4	1	10	...	2	1	...
Wet land.	Rajahmundry	3	11	9	3	10	2	5	...	..
	Masulipatam	2	3	3	3	...	8	5	10	...
	Guntoor	3	5	4	6	6	2	6	10	...

11. The demand upon the ryot it is seen is enhanced since he is charged for all lands in his occupation, though waste. This in its details must be received with some qualification, as waste is profitably retained sometimes for pasture.

12. Profits from the cultivation of rent free tenures have enabled the ryot, it is stated, to meet the heavy rents of Government lands.

13. Regarding the principles which should regulate our system in future, important views are put forth. They embrace the following points.

1. In a survey the measurement of the village area by Khandams, a Khandam being a portirn of the village with distinct boundaries and consisting for the most part of small sub-divisions or fields.

2. A moderate assessment.
3. Discontinuance of annual settlements.
4. A new Kistbundy or the periods for the payment of rents.
5. Abolition of the interference of the public servants.
6. The village officers to be responsible for the punctual realization of rents, with adequate remuneration.
7. Works of irrigation, large and small, the latter to be kept in repair by the ryots themselves.
8. Diffusion of education.

14. The Sheristadar is of opinion that if the reforms comprized under the foregoing heads are fairly carried out, both Goverment and the people will be great gainers, and that a large reduction of the ministerial Establishments of Government will follow. With a fair settlement of the Land Revenue and with the spread of education it is also thought that there will be a diminution of crime.

15. Some of the reforms noticed, as fixing better periods for the collection of rents, so that the ryot may not have to meet the demand against him till his produce is in the market, are being carried out. The great points to which attention is drawn by Royapah's remarks are:

First, the principle that should regulate the measurement of the village area.

Secondly, the principle according to which the assessment should be fixed.

Principle that should regulate the measurement of the village area. Royapa, paras. 44 *to* 60.

16. On the first point, after an elaborate exposition from the village accounts of the different standards of measurement in use in the Circars, the mode of distribution of the village area, and the sizes of fields, Royapah takes his stand on usage, regarding the distribution of the lands of the village as the principle that should guide the measuring officer. According to the usage of the country from the earliest times, the lands of a village are divided, he observes, into Khandams or large allotments, and these again into fields, a village consisting of 8, 10, 15 or 20 Khandams as the case may be. A Khandam may be the property of a single individual, or it may be held jointly by several persons, or its component fields may form separate properties.

17. Having taken the permanent sub-divisions of the village area as the principle of measurement, the boundaries of each, it is stated, should be carefully ascertained and fixed by skilful hands, this is viewed as the chief object of a survey, the component fields being afterwards filled in by instructed though less skilful persons, as the general contents of the Khandam are already accurately known.

18. The errors of former surveys are noticed in some detail. In the Ceded Districts the surveyors had no fixed rule but each followed what appeared convenient at the time. In the Bombay survey an arbitrary rule was adopted, viz. the extent of land that a pair of bullocks would plough, was taken as the proper size of a field or separate number. Both it is stated did violence to usage and could not therefore represent the permanent state of things, as the component parts of a Khandam frequently change while the boundaries of the Khandam never vary.

NOTE—The Kuttay of Tanjore corresponds with the Khandam under consideration. Its subordinate fields were measured and numbered at some expense about 25 years ago. I believe that they cannot be traced at this day in consequence of changes always going forward, while the boundaries of the Kuttay which probably were not laid down are intact.

Assessment paras. 61 *to* 74.

19. The errors of former assessments are next brought forward. An instructive illustration of errors of assessment as exhibited in the former and present condition of two classes of villages in the Ceded Districts is given in para. 62. One

class, in which the lands were at the time of the survy fully cultivated and therefore highly assessed, is now in a state of deterioration ; the other class, lightly assessed having also at the time waste lands, is yielding at the present time a revenue to Government twice and four times the amount of the former assessment.

20. Excessive rates of assessment are viewed as the chief cause of deterioration and of a stationary condition.

21. There are three modes, it is stated, of fixing the assessment.

First. An aggregate amount on the village to be apportioned afterwards on the several Khandams.

Secondly. An aggregate on each khandam.

Thirdly. Classification of each soil in the Khandam, with a suitable rate of assessment to each class.

22. In the first and second cases the distribution in detail is left to the ryots under the supervision of of the public establishments.

The second mode of fixing the demand is preferred.

23 An assessment framed implicitly in accordance with a classification of soils is pronounced to be attended with difficulties, as a field may contain several sorts of land ; the boundaries of a field also may change and the occupation of land and formation of fields are not regulated by the position and extent of the different soils. These are found irregularly distributed over the Khandam.

Para. 16. 24. As the present money assessment of the Circars is ancient, it is considered that it should be taken as the basis of the proposed future demand ; this is viewed as fundamentally important. Its reformation may be made on a consideration of the soils, of past produce, prices of grain and collections. These are viewed as good collateral data. With a scale of District or talook rates to guide them the ryots, it is stated, may be left to apportion the Khandam amount among themselves under supervision.

25. Illustrations of the mode to be pursued in fixing the assessment are given in detail in para. 69. The value of the Khandam is first carefully ascertained ; its apportionment is afterwards made by the ryots under fixed rules.

26. The aggregate rent fixed for each Khandam will be invariable; the assessment of its details will vary with the changes in the properties composing the Khandam.

27. The following are considered fair rates of assessment for the Circars, with reference to the soils of each District.

	Ganjam.				Vizagapatam.				Rajahmundry.				Masulipatam and Guntoor.			
Number.	Dry rate per acre.		Wet rate per acre.		Dry rate per acre.		Wet rate per acre.		Dry rate per acre.		Wet rate per acre.		Dry rate per acre.		Wet rate per acre.	
1	2		3		4		5		6		7		8		9	
	Rs.	A.	Rs.	A.	Rs.	A.	Rs.	A.	Rs.	A.	Rs.	A.	Rs.	A.	Rs.	A.
1	2	...	5	...	2	8	6	...	3	8	8	...	3	...	7	...
2	1	12	4	8	2	...	5	8	3	...	7	...	2	12	6	...
3	1	8	4	...	1	12	5	...	2	12	6	8	2	8	5	...
4	1	4	3	8	1	8	4	8	2	8	6	...	2	4	4	...
5	1	...	3	...	1	4	4	..	2	4	5	8	2	..	3	8
6	...	12	2	8	1	...	3	8	2	...	5	...	1	12	3	...
7	...	10	2	...	...	12	3	0	1	12	4	8	1	8	2	8
8	...	8	1	12	...	10	2	12	1	8	4	...	1	4	2	...
9	...	6	1	8	...	8	2	8	1	4	3	8	1	...	1	12
10	...	4	1	4	...	6	2	4	1	...	3	...	...	14	...	...
11	...	...	1	...	...	4	2	...	...	14	2	12	...	12	...	...
12	...	...	...	...	...	...	1	12	...	12	...	...	...	10	...	...
13	...	...	...	...	...	...	...	...	...	10	...	...	...	..	...	...
14	...	...	...	...	...	...	...	...	...	8	...	...	...	...	...	...
15	...	...	...	...	...	...	...	...	...	6	...	...	...	...	...	...

Para. 74. 28. The produce of irrigated land being assumed at about double that of land not irrigated, the assessment of the former it is thought should be twice that of the latter, with a small further addition in consideration of the market value of products grown on watered land being higher than those obtained on lands without irrigation. On this principle the following scale of irrigated rates has been obtained.

Dry rate.		Teerwajastee equivalents to the dry rate.		Addition on account of the higher prices of wet produce		Total addition		Wet rate.	
1		2		3		4		5	
Rs.	As.	Rs.	As.	Rs.	As.	Rs.	As.	Rs.	As.
3	8	3	8	1	...	4	8	8	...
3	...	3	...	1	...	4	...	7	...
2	12	2	12	1	...	3	12	6	8
2	8	2	8	1	...	3	8	6	...
2	4	2	4	1	...	3	4	5	8
2	...	2	...	1	...	3	...	5	...
1	12	1	12	1	..	2	12	4	8
1	8	1	8	1	...	2	8	4	...

NOTE.—The addition in Column 3 is so small that a graduated scale for the different soils is considered unnecessary.

Rates lower than the above to be applied if necessary to very inferior lands, as Rova and Parra if they receive water from the Government works.

29. Half the fixed irrigated rate it is stated, may be taken as the additional cess for a second irrigated crop.

30. An uniform water rate for all descriptions of land indiscriminately is explained to be impracticable, because the productive power of the land varies.

Para. 72.

31. Repeated cropping is pointed out as having caused deterioration. A system of farms, by which portions of the holding will be fallow from time to time, furnishes, it is stated, the remedy. It is supposed that an extensive occupation of fresh land will follow the introduction of this plan.

Para. 78

	Rupees.
Reduction,........	9,30,000
Set off,............	5,59,000
Eventual diminution of Revenue.	3,71,000

32. The financial result of the proposed reformation of the assessment in the five Circars will involve, it is supposed, a diminution of Rupees 9,30,000 on the present settlements, for which there is a set off of Rupees 1,99,000 on account of sundry remissions, which will be discontinued, and of Rupees 3,60,000 for new land to be occupied, making a total set off amounting to Rupees 5,59,000, and reducing the ultimate diminution of revenue to Rupees 3,71,000 for five districts. It is however to be remembered

that the assessment of lands, not cultivated at present, in occupation, and which is charged against the ryots, amounts to Rupees 6,80,000 as the whole of this is not profitably retained, a portion of it must under any circumstance be allowed to be relinquished, which would considerably reduce the above probable deficit of Rupees 3,71,000.

33. The following is a tabular view of the probable financial effect in each District.

Names of Zillahs.	Remainder after deducting Remissions for waste out of the Atkubady or gross demand.	Amount of reduction necessary to make the Ryot's share equal to two-thirds of the gross produce. Estimate. Per Centage.	Estimate. Amount.	Permanent and temporary remissions hitherto given.	Remainder.	Assessment of waste land paid by the ryots.	Profit to Government by the cultivation of waste lands.
1	2	3	4	5	6	7	8
1 Ganjam,............	4,86,000	15	73,000	26,000	47,000	12,314	5,000
2 Vizagapatam, ...	3,04,000	25	76,000	55,000	21,000	5,632	5,000
3 Rajahmundry...........	14,24,800	20	2,85,000	12,000	2,73,000	2,04,994	.....
4 Masulipatam,...........	7,16,000	25	1,79,000	23,000	1,56,000	1,84,387	1,00,000
5 Guntoor,...........	12,68,000	26	3,17,000	83,000	2,34,000	2,72,133	2,50,000
Total...	41,98,000	...	9,30,000	1,99,000	7,31,000	6,79,460	3,60,000

34. I have had two objects in referring to the paper which the Sheristadar has drawn up, first to shew that the presiding officer of a District has it in his power at act on sound principles of Revenue settlements with present means; and secondly, to lay before Government the views of an experienced public servant as to the principles on which the reformation of the assessment in the Northern Circars should be conducted. The Sheristadar in a certain sense speaks with authority partly from considerable local knowledge and partly from the information furnished by the public accounts, to which he has had access. The details from the latter course I might have embodied in my letter, but this course would hardly have been fair to an old servant of ability and experience, who appears to be taking a warm interest in the question of the settlement of the Circars.

35. It will perhaps be deemed unnecessary that I should add any thing to what has been stated in the foregoing paras. in support of the view that the Collectors in the Northern Circars possess the means of enforcing sound principles of assessment and settlement without what is termed, a professional Survey.

36. In regard to the principles that should guide Collectors in a reformation of the assessment, the views of the Commissioner's Sheristadar, have generally my concurrence, these are:

1st. That the method of proceeding shall be by Khandams.

2d. That the assessment shall be fixed on the Khandam, the apportionment, when its component fields form separate properties, being regulated by the ryots under fixed rules and the supervision of the Revenue officers.

3d. That the aesessment of irrigated lands shall be regulated on the principle of the Sheristadar's scale without reference to the nature of the crops, the rates of the scale being open to further scrutiny by the local officers at the time of fixing the assessment.

4th. That no additional cess shall be imposed for water taken for a second crop.

5th. That the irrigation of a District generally shall be viewed under two classes, the first embracing those means of supply which are certain, as the anicut channels, river channels, tanks and other sources which receive unfailing supplies of water; and the second, including lands of uncertain supply, the full irrigated assessment being charged for the former, and lower rates for the latter.

6th. That the settlement shall be by farms whenever convenient and the ryots desire it. The rule it is obvious is inapplicable to petty holdings.

7th. That a measurement of the lands shall be made, it shall be by Khandams, the boundaries and areas of these being determined by skilful and trustworthy agency, the component parts of a Khandam being afterwards ascertained and filled in.

37. The fourth rule is based on the following considerations. An assessment for a second wet crop is not customary in the Circars. Sometimes under annicuts, water is taken for a second crop, sometimes in a favorable season, it is grown without it and sometimes an occasional moistening only is necessary as in the case of cotton, and oil seeds. In every case the demand would involve inquisition and frequently lead to concealment and fraud. If on the other hand, it is thought that the rule is unnecessarily indulgent and that revenue may ultimately be sacrificed under its operation when the effects of the annicut irrigation are fully experienced, the question may remain in abeyance for 4 or 5 years, meanwhile as the restrictive character of the tax will not be felt, free scope will be afforded for the sowing of a second crop. At the present time a very active cultivation of oil seeds with a mere moistening of the land is in progress in the Delta talooks to meet the demand in the European markets. If the full second crop cess were imposed, it is probable that this species of cultivation would cease.

38. The fifth rule commends itself because it is followed by the Natives themselves, and because it will lead to the land fed by that description of irrigation being cultivated every year, whereas at present it is cultivated only when the water is sufficient for a rice crop, which may be and is often, as in the Palnaud, once in 3 or 4 years.

39. Nothing has been said above in regard to a re-adjustment of the assessment at any future period founded on a change of circumstances. Permanent fluctuations in price alone it has been decided furnished grounds for re-adjustment. Revision of the assessment as the term is now understood cannot be again necessary. It may be entered in the ryots' Puttahs that the assessment will be raised or lowered if necessary at a given per centage at stated periods with reference to permanently prevailing prices of grain. For this purpose the prices at certain towns inland and on the coast should be regularly recorded

under suitable arrangements. With a reformed assessment and improved irrigation increased production may be expected. Its effects on prices will be counteracted by improved means of transport opening up fresh markets and an improved circulation partly from increased local expenditure and partly from a less withdrawal of specie from its own legitimate sphere of action.

40. I am of opinion, referring to the confused state of the assessment in the Rajahmundry and Masulipatam districts, that no time should be lost in introducting a reformed system. The reformation of the assessment and settlement to be undertaken immediately, that of the village Registers which is in fact the survey of the village gradually. The ultimate sacrifice of revenue, involved in the proposed measurers is estimated, as already stated, at less than Rupees 3,71,000. I am disposed however to think that there will be little, if any permanent loss of revenue, as the present estimates are based on the slow progress of past years, whereas on the reforms being liberally carried out and restrictions and discouragement removed, it may be expected that capital will be extensively invested in land.

41. These views of financial effect are altogether irrespective of the general stimulus and gain to Government to be expected from the annicuts and other improvements in the irrigation and communications of the country in progress, or to be undertaken hereafter, the operation of which again will be effective in an increased degree, so soon as the contemplated reformation of the assessment and Revenue administration is carried out.

42. Looking to the marked change for the better in those parts of the country which have the benefits of improved communications, it may not be out of place to repeat that the prosperity of the Revenue will be in the ratio of those improvements.

Reformation of the Land Registers.

43. The state of the Land Registers is an important consideration. In Guntoor these were attended to as already stated with the means at hand. The Collector of Rajahmundry through his Sub-Collector Mr. Taylor has large survey means at his command, created in the short space of 18 months, with the small allowance of Rupees 90 per mensem. The benefits of this grant have been great. A knowledge of surveying is becoming diffused throughout the District; and in some instances the value of a survey, I

understand is appreciated. This state of knowledge and feeling seem to indicate that the reformation of the village Registers should be made systematically but gradually.

44. It appears to me that this work should be gradual, because if a number of Surveyors are dispersed over the District, with a view to its speedy accomplishment, there will be much confusion, no intelligent co-operation on the part of the ryots, passive resistance in some instances, and little opportunity afforded to the local officers to become acquainted with the real state of their villages and the tenures of land. In a country recently acquired, without good accounts for a basis of settlements; a rapid survey of some kind is necessary; but this is not the situation of Rajahmundry and the other Circars.

From Collector 5th Nov. 1855, with enclosure.

45. I beg to forward a letter from the Collector of Rajahmundry on this subject. Both that officer and his Sub-Collector, however inclined to the preliminary of an accurate survey, that conclusion resting on the inaccuracy of the present village accounts as to the contents of fields. The Sub-Collector adds that "though every field may be specified in the Curnums' accounts and its past collections known, I submit that this information will not enable us to determine a *fair permanent* assessment, simply because the entries in regard to soil, class, extent and produce are not deserving of credit." As it is admitted by those officers that the accounts shew the number, name and maximum rent of a field with past collections, the opinion in favor of a postponement of right principles of settlement seems hardly justifiable. Increase of rent will not follow a fresh measurement, because the utmost rent the field can bear is now known and has formed for years the basis of demand. The average rate per acre of the field will be effected by a new measurement but not the rent to Government, because the present rent represents the experienced capability of the field. Where encroachments exist and rents are fraudulently withheld the ordinary vigilance of the Collector and of his Sheristadar, should detect them. Fraudulent concealments will be found after the most accurate survey, if the management is lax.

46. The Sub-Collector in para. 2 of his letter seems to think that the defects of the joint rents may "be modified or remedied" and finds no difficulty in fixing a collective rent on "general considerations." This last term is indeterminate and it is not apparent how the proposed

remedy can be applied in the absence of what is stated to be required, viz. "a proper register of the fields and on accurate measurement of the land." On the other hand, if the means of remedy are within reach, it would be better that they should be applied in a right direction rather than to the perpetuation of a system which is considered to be only temporary.

47. The impolicy of delaying sound measures will be apparent when it is considered that the present joint rents are in themselves an anomaly, aiming at Ryotwar, while retaining the name and many of the requirements of the renting system. The elements of the joint renting system in its present phase are joint responsibility, fresh additions to the aggregate village rent when fresh development of its resources renders that step necessary, a re-distribution of the assessment on those occasions, and the consequent disputes among the ryots rendering the interference of the public servants necessary. Joint responsibility, the main element of the system, is now seldom enforced. The fresh additions to the village rent, when occasion demands, if discontinued, will be the sacrifice of so much revenue. With or without joint responsibility the practical working of the system is Ryotwar, with this great error that when fresh lands are brought under cultivation, instead of such land bearing an appropriate assessment to be paid by the holder, an addition is made to the collective demand on general data which has to be apportioned anew among the whole community. This uncertainty, as has fallen under my observation, is harrassing to the ryots. Each ryot under the rent looks to the portion of the aggregate rent which he is to bear. The assessment of the different fields of the village on some fixed principle is a secondary consideration, or is entirely lost sight of, and in this way the ancient assessment is set aside.

48. It is now eleven years since joint rents were introduced into Rajahmundry. They were adopted under the then peculiar circumstances of the district, and as a temporary measure only. They were fixed low at first and may be said to have fulfilled the object of their institution. Their present mixed character of rent and ryotwar seems unsuited to present circumstances and is calculated to retard progress.

49. Mr. Purvis, who is anxious to do what he can, has reduced the rents, he says (para 4.) in the talooks above the annicut. This

however necessary in itself does not remove the evils of the system. It does not secure the bulk of the landholders the revenue given up by Government. Moreover, as nearly the whole of the increase in the revenue since the first introduction of the system has taken place in the Delta talooks, it seems but fair that, that portion of the District after making due allowance for the operation of the annicut should also participate in the relief.

50. The following exhibits the relative standard of demand in the upper and lower talooks.

	Delta Talooks.					Capawrum Talook, a few villages of which are under Annicut influence.					Talooks beyond the influence of the Annicut.				
	Land.	Sist.	Average.			Land.	Sist.	Aver-age.			Land.	Sist.	Aver-age.		
1	2	3	4			5	6	7			8	9	10		
	Acres.	Rs.	R.	A.	P.	Acres.	Rs.	R.	A.	P.	Acress.	Rs.	R.	A.	P.
Dry,.....	1,70,133	6,87,292	4	...	8	50,929	99,351	1	15	3	76,910	96,616	1	4	1
Wet,....	1,03,979	3,50,467	3	6	...	16,526	67,746	4	1	6	25,441	98,595	3	14	...
Garden,	3,993	22,795	5	11	5	83	298	3	9	5	905	11,148	12	4	6
Total,..	2,78,105	10,60,554	3	13	...	67,538	1,67,395	2	7	8	1,03,256	2,06,359	2	...	...

51. Mr. Purvis having been called upon to explain with reference to his letters above mentioned, to what extent and on what principle he afforded relief by a reduction of the present joint rents, and what value was to be attached to the demand in its reduced form as representing a fair rent to Government and a moderate assessment on the village, states in his letter dated 24th Ultimo, copy of which is herewith submitted, that the reduction embraces 48 villages, aggregating in amount Rupees 9,068, but he "is not prepared to demonstrate that the rent fixed in each case is exactly that which ought to be drawn from the village as a fair demand, both with reference to the just dues of Government and the interests of the ryots." Mr. Purvis adds that "so far as he understands the question it is the want of sufficiently accurate information on this head that renders a survey so necessary." The Collector fixes the

With 3 Enclosures.

aggregate rent in the best way he can, by general considerations as to the condition of the village while the field Registers in such an arrangement are necessarily set aside. Had these been produced and scrutinized and a settlement by individuals (Ryotwar) observed, the desired information would have been forthcoming and the Collector would cease to look to a survey by professional men for statistics which are always within his reach.

52. In the same letter, Mr. Purvis states that the information sought to be obtained as to the productiveness of lands by cutting and thrushing the produce in the presence of the Public servants is not to be trusted. This is evident from the Statements which he has furnished which exhibit an improbable disparity in the rates of productive power. Trustworthy results are not likely to be obtained from any general measure of this kind, as it is quite impossible to secure the requisite amount of honesty and careful supervision in every case. If it is wished to test the productive power of any particular soil or the assessed rates of any particular village and that the necessary information can only be obtained in this way, the proper course is a careful selection both of fields and supervision for the purpose. Even here, the result would be chiefly valuable as furnishing collateral data and not a basis for an assessment, as produce varies with season and with the labor bestowed. It is only the produce of land in an ordinary year and in an ordinary state of culture that can be of any value to an assessing officer. Great precision is unattainable. For an assessment to be permanent the ryots require that one year out of 3 or 5 should be struck out altogether, and practical officers have said that all attempts at equability or an advalorem assessment, such as are supposed to be aimed at by the classification of land are visionary. If nicety were attainable, the lapse of two or three years would disturb it, and as ryots are to enjoy the benefits of all improvements made by themselves, all niceties of adaptation of rate to capability are precluded.

53. It is hardly desirable to attempt at the present time the experiment of a moderate collective rent to be in force for a limited period only. The development of the resources of the District in progress in consequence of the extensive works of irrigation under execution point out that our settlements should be of a more definite character, and that the full advantages accruing from the heavy expenditure on account of those works should not be lost to Government. A collective or joint rent with an apportionment by the inhabitants themselves has, I believe,

been some times advocated on the principle of self Government, but a body of 50, 100 or 200 ryots are not likely, it is seen, to assess themselves fairly, and the attempt is opposed to the experienced* inability of men to govern themselves.

* *Alison's History since* 1815, *Vol* 1.

54. During the last few days since my arrival in the District of Rajahmundry, the following facts shewing the impossibility of enforcing a healthy system under a collective arrangement, have fallen under notice.

55. The joint rent of Mullempoody in the Capaveram talook, for Fusly 1264 (1854-55) was Rupees 1,030. The extent of land is 60 Potties. The apportionment was left with the general consent to the Moonsiff. That person made some alterations in the apportionment of the preceding year embracing 20 Pooties of land and Rupees 360 of the amount of rent. This arrangement was not acceptable to the whole community, and the following distribution was finally made by them.

Number of ryots.	Extent of land. Potties.	Rent. Rupees.	
5	20	372	As settled by the Moonsiff.
11	35	599	As bid forby Ryots.
5	5	59	New ryots, as the usual ryots did not agree to occupy this land.
	60	1,030	

56. The system of bidding or challenge has been ordered to be discontinued, as the Government are aware, as deterring the ryots from making improvements to their lands, but Mullempoody is not a solitary instance of the prevalence of the system; and it is to be feared that so long as a collective amount has to be distributed on the principle of self Government, the same irregularities will continue. Five occupants were newly brought to the village to take up what the resident ryots would not hold, as the entire collective amount must be made good to Government. It was ascertained that not one of the holdings in this village was in the hands of the occupant of the preceding year.

57. Again, it is known to Government that the addition to the assessment of lands brought under the annicut channels is not to be changed till the third year of the conversion of the land from dry to wet. The village of Mundapettah is watered in this way and the sum to be added to the collective rent on this account, is chargeable only in Fusly 1266 (1856-57,) but in consideration of the increased profit enjoyed in Fusly 1265 (1855-56,) by those ryots, whose lands were watered, Rupees 335 of the joint rent in that year was apportioned in addition on their lands with a corresponding reduction on the lands of the other ryots. The distribution of the joint rent was thus made with reference to the profits of each ryot and the owner of the irrigated land was shut out from the advantages he ought to have enjoyed for his outlay. Government, it may be added, was no gainer. They had consented to give up their right till fusly 1266 (1856-57), but it was with the expectation that the profits would be reaped by the right person.

58. Similar instances of an irregular distribution have come under observation, but these are brought forward to shew how difficult it is for the Collector to enforce a right system with a collective rent varying in amount from time to time.

Reform of the Assessment.

59. It will be gathered from the foregoing remarks that both the system of settlement and the village Registers should be reformed. The former in reality does not involve so great a change, or so much labour as the Collector and his Sub-Collector seem to imagine. An opinion has been already expressed above, that the ancient money assessment should form the basis of future rents, to be lowered to the necessary extent according to past collections and other data within the Collector's reach. Instead of fixing at the time of the Jummabundy, a joint rent for the next year, to be apportioned in the manner already stated and with the supervision of the public servants, an intolerable labour as represented to me by the servants from its taking place every year and protracted perhaps till the ensuing Jummabundy as all the disputes of the ryots must be settled, it is only necessary that a statement prepared from the village Registers, shewing the Khandam and fields, their names and recorded contents, the ancient sist and what would be a fair assessment for the same in the opinion of the people and in that of the Tahsildar, who is the Head Revenue officer of the Talook, should be laid before the Collector, once for all, who with past collections

and other information before him and in communication with the ryots will either confirm it or suggest for the consideration of the ryots, such modification of it as may occur to him. This Register will be final, subject only to revision if necessary at the time of survey : changes of holdings and of assessment, the defects of the present system of settlement, will in this way be obviated.

60. To ensure a modification of the ancient assessment on system, a scale of District rates, as explained in a former part of this letter, should be put into the hands of the ryots, according to which the entries in the column of the statement which contains their proposed rates should be made.

61. The present recorded area of each field in Pootties will be entered, but the Curnums of each village should be required to state within 6 months on actual inspection and measurement the contents in acres.

62. This appears to me to be the only way of treating the subject with the view of removing the evils complained of. It is the course recommended by the Board of Revenue in their proceedings mentioned in the early part of this letter and that which I advocated in my letter to Government dated 21st December 1854. The labor to the Collector is about the same as that for fixing the joint rents for a single year with the advantage of its not being again required.

63. Besides a reformed system of settlement the proposed measure involves relief from excessive assessment. In North Arcot immediate relief, pending more matured measures has been given. The present proposition is similar in principle.

Roformation of the Village Registers.

64. If the settlements are reformed as above suggested, a measurement of the village area becomes in some degree a secondary consideration. I do not however think that the question should be viewed in this way. The changes in progress from the annicut works and the foundation laid in Rajahmundry for survey operations on correct principles render it expedient that attempts to obtain improved Registers of the land with Maps, should not be indefinitely postponed. I have already expressed an opinion with reasons that the work should be gradually carried on. I concur in the view of the Collector and Sub-Collector* that a large body of surveyors, strangers to the District, should not be employed for this

* *Sub-Collector para.* 13.

purpose; a part from the improved bearing of those servants, who have passed through Mr. Taylor's Survey school, as has fallen under my observation, it appears to me a fundamental point at this late date of our connexion with the people that in any Survey operations a willing and intelligent co-operation on their part should be secured. I would suggest that Mr. Taylor, the Sub-Collector, be set apart for this duty, with six surveying parties to begin with, each set to be paid at the rates proposed by Mr. Taylor, as shewn in the margin. A native Assistant for every six sets on Rupees 50 per mensem seems to be necessary, with a small establishment for the classification and accounts. The monthly expense for six sets would then be as follows:

	Rs.
1 *Surveyor,*............	15
1 *Assistant do*.........	7
Chain bearers, &c......	11
	—
	33

	Rs.
6 Sets of Surveyors, - - - -	198
Goomustahs, &c. for classification and accounts, -	40
An Assistant Superintendent, - - -	50
Papers, &c. including paper for maps, - -	25
Total per mensem...	313

65. The charge for the survey of a village will be small, and Mr. Taylor should be instructed I think to consider whether arrangements for levying the amount wholly or in part in each case should not be made. The charge for pillars or other boundary marks will of course be borne by the village.

66. Mr. Taylor will commence with a Delta Talook. Much experience will be gained in the course of its survey for future guidance.

Ext. Mins. Cons. 1st *May* 1855, *No.* 526.

67. I beg to suggest that Mr. Taylor may be allowed to retain the present allowance of Rupees 93 per mensem to afford instruction in surveying and to assist him generally in his superintendence of the proposed work.

68. It appears desirable that a rule should be laid down at once, requiring all village Curnums as well as all candidates for office to pass in surveying as a necessary qualification.

69. As it is desirable that the Maps, to be practically useful, should exhibit the fields with their features and as the survey is required for practical purposes, I would suggest that it be made by Khandáms, each Khandam with its component parts being separately Mapped on a large scale. A general Map of the village, shewing the Khandams only, may also be prepared on a smaller scale, if necessary, but the former in a Revenue survey is perhaps chiefly wanted. Such Khandam Maps, would be intelligible to the occupants interested, they may be lithographed and sold cheap.

70. Should the Right Honorable the Governor in Council be pleased to approve of these suggestions, I would beg to recommend the extension of the proposed arrangement to Masulipatam under the superintendence of Mr. Taylor. A knowledge of surveying is springing up in that District as in Rajahmundry with the aid of the small monthly grant of Rupees 72. The joint rents of that District may also resolve themselves at once into a strict Ryotwar form. The proper time for this operation in both Districts is at the Jummabundy now commencing.

From Govt. 24th Oct. 1854, *No.* 1374.

71. Feeling that the demand for additional administrative aid is frequently uncalled for, and that present means should be made to suffice, except where the demand for assistance is urgent, I would suggest that the Head Assistant Collector of Rajahmundry be placed by the Collector in charge of the Sub-division, during the employment of Mr. Taylor on other duties, and that the Collector's Second Assistant receive charge of the Head Assistant's Talooks so soon as the Collector is of opinion that this duty may be safely entrusted to that officer. If Government are of opinion that the provision of 4 District Courts at Rajahmundry, including the district Moonsiff who holds his Court there, are more than sufficient for the demands upon them, the general administration of the district would undoubtedly be much benefited by the addition of a second Sub-Collector and Joint Magistrate, and I would venture to suggest the appointment of one in lieu of the present Sub-Court.

Civil and Sessions Judge.
Sub Judge.
Moofty Suder Ameen.
District Moonsiff.

72. I have stated the course of proceeding which appears to me necessary. On the other hand, there is the opinion that a professional survey is absolutely necessary, and that a survey and field arrangements should go on together, the latter view resting on a supposed necessity for an accurate measurement of fields and for ascertaining de novo their capabilities.

Nos. 1 *and* 2.

73. I beg to forward two useful Statements for reference, one shewing the extent and assessment of waste lands in the occupation of ryots, and the other, the demand of Government on the introduction of joint rents and its subsequent growth.

No. 1.

Particulars of Rent levied on waste lands in the occupancy of Ryots for Fusly 1263.

Districts.	Pasture land.			Left waste though water, was available.			Left waste owing to the Ryots' negligence.			Left waste from poverty & want of water.			From other causes,			Total.		
1	2			3			4			5			6			7		
	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
Ganjam, ...	12,314	.	...	......	...	...	......	...	...	......	...	...	......	...	...	12,314	...	...
Vizagapatam, ...	1,068	...	...	3,009	...	...	1,517	...	...	......	...	...	39	...	...	5,632	...	...
Rajahmundry, ...	1,31,888	...	...	24,212	...	...	223	...	...	43,421	...	...	5,250	...	...	2,04,994	...	...
Masulipatam, ...	79,073	...	...	......	...	...	......	...	...	1,05,314	...	...	......	...	...	1,84,387	...	...
Guntoor,.....	70,512	...	...	1,207	...	...	66,493	...	...	9,793	...	...	1,374	...	...	1,49,379	...	...
Total...	2,94,854	...	...	28,428	...	...	68,233	...	..	1,58,528	...	...	6,663	...	...	5,56,706	...	...
Poollary of the Guntoor District,.....	1,22,754	...	...	......	...	...	......	...	...	......	...	...	......	...	...	1,22,754	..	...
Grand Total...	4,17,608	...	...	28,428	...	...	68,233	...	...	1,58,528	...	...	6,663	...	...	6,79,460	...	...

Commissioner's Camp,
Rajahmundry,
6th December 1855.

J. GOLDINGHAM,
Commissioner.

No. 2.

Statement Comparative between Fusly 1254 and Fusly 1263 shewing the progressive increase in the Demand in the Government Villages in the District of Rajahmundry.

	Talooks.	Increase in the demand of Fusly 1263 above the former demand. — Villages in which the Per centage of increase is Rupees 50 and upwards.						
		No. of villages.	Former demand.			Demand of Fusly 1263.	Comparison Cols. 5 and 7	
			Demand of fusly 1254.	Demand of other Fuslies.	Total.		Increase.	Percentage.
	1	2	3	4	5	6	7	8
			C. Rs.	C. Rs.	C. Rs.	C. Rs.	C. Rs.	
1	Amlapooram,.........	18	12,103	......	12,103	21,202	9,099	75· 3
2	Nagarum...............	5	6,470	......	6,470	10,331	3,861	59·11
3	Raly,......................	...	......	......	......	......	......	....
4	Kota Ramachendrapooram,...........	1	1,100	......	1,100	1,890	790	71·13
5	Bickavole,............	17	28,977	......	28,977	61,709	32,732	112·15
6	Peddapoorum........	1	6,600	......	6,600	10,112	3,512	53· 3
7	Capavarum,...	12	13,251	......	13,251	22,241	8,990	67·14
8	Rajahmundry,.... ...	1	660	......	660	1,923	1,263	191· 6
9	Koottapalli,...	33	14,914	......	14,914	27,888	12,974	87...
10	Lingumpurty,.... ...	31	3,383	559	3,942	7,068	3,126	79· 5
11	Cocanada division,...	...	......	......	......	....	......	......
12	Pittapooram do....	2	896	......	896	1,690	794	88·10
	Total...	121	85,354	559	88,913	1,66,054	77,141	86·12
13	Mogultoor,...........	5	6,935	......	6,935	12,059	5,124	73·15
14	Woondy,...	23	23,206	......	23,206	38,614	15,408	66· 7
15	Tanookoo......	5	5,583	......	5,583	9,044	3,461	61·15
16	Todemulla,...........	17	3,626	1,123	4,749	8,302	3,553	74·13
	Total...	50	39,350	1,123	40,473	68,019	27,546	68· 1
	Grand Total...	171	1,27,704	1,682	1,29,386	2,34,073	1,04,687	80·15
Particulars. Talooks where the Lists were increased in consequence of irrigation being available.	Capavarum	1	4,366	.....	4,366	7,078	2,712	62· 2
	Bickavole,	17	28,977	......	28,977	61,709	32,732	112·15
	Total...	18	33,343	....	33,343	68,787	35,444	106· 5
	Remaining	53	94,361	1,682	96,043	1,65,286	69,243	72· 2

Statement Comparative between Fusly 1254 and Fusly 1264, &c.

	Talooks.	Increase in the demand of Fusly 1263 above the former demand. Villages in which the Per centage of increase is Rupees 33 and upwards. No. of villages.	Former demand. Demand of fusly 1254.	Former demand. Demand of other Fuslies.	Former demand. Total.	Demand of Fusly 1263.	Comparison Cols. 12 & 13. Increase.	Comparison Cols. 12 & 13. Per centage.
		9	10	11	12	13	14	15
1	Amlapooram, ...	13	16,443	......	16,443	23,523	7,080	43· 1
2	Nagarum, ...	8	13,008	......	13,008	18,063	5,055	38·14
3	Raly, ...	6	14,244	......	14,244	19,805	5,561	39· 1
4	Kota Ramachendra-pooram, ...	2	2,534	......	2,534	3,483	949	37· 7
5	Bickavole, ...	5	9,648	......	9,648	13,344	3,696	38· 5
6	Peddapoorum, ...	4	7,537	......	7,537	10,547	3,010	39·15
7	Capavarum, ...	17	26,421	......	26,421	37,250	10,829	40·15
8	Rajahmundry, ...	2	5,441	......	5,441	7,509	2,068	38·...
9	Kottapalli, ...	11	5,669	......	5,669	7,971	2,302	40·10
10	Lingumpurty, ...	25	4,548	770	5,318	7,598	2,280	42·14
11	Cocanada division, ...	...	....	......	......	......	......	....
12	Pittapooram do. ...	1	1,700	......	1,700	2,391	691	40·10
	Total...	94	1,07,193	770	1,07,963	1,51,484	43,521	40· 4
13	Mogultoor, ...	6	4,370	......	4,370	6,200	1,830	41·15
14	Woondy, ...	26	22,945	......	22,945	32,109	9,164	39·15
15	Tanookoo, ...	5	14,150	......	14,150	19,430	5,280	37· 5
16	Todemulla, ...	6	2,240	185	2,425	3,475	1,050	43· 5
	Total...	43	43,705	185	43,890	61,214	17,324	39· 8
	Grand Total...	137	1,50,898	955	1,51,853	2,12,698	60,845	40· 1
Particulars. Talooks where the Lists were increased in consequence of irrigation being available.	Capavarum,	3	11,474	....	11,474	15,965	4,491	39· 2
	Bickavole,	4	8,157	......	8,157	11,319	3,161	38·12
	Total...	7	19,631	......	19,631	27,284	7,653	39·...
	Remaining.	130	1,31,267	955	1,32,222	1,85,414	53,192	40· 4

Statement Comparative between Fusly 1254 and Fusly 1264, &c.

	Talooks.	Increase in the demand of Fusly 1263 above the former demand. Villages in which the Per centage of increase is Rupees 16-8-0 and upwards.						
			Former demand				Comparison Cols. 19 & 20.	
		No. of villages.	Demand of fusly 1254.	Demand of other Fuslies.	Total.	Demand of Fusly 1263.	Increase.	Per centage.
		16	17	18	19	20	21	22
1	Amlapooram,.... ...	23	28,462	......	28,462	35,570	7,108	25·...
2	Nagarum,..	17	36,852	......	36,852	46,628	9,776	26· 8
3	Raly, ...	12	20,601	......	20,601	25,197	4,596	22· 5
4	Kota Ramachendra-poorum,.	8	13,684	.....	13,684	16,630	2,946	21· 8
5	Bickavole,..	8	16,779	...	16,779	20,996	5,217	25· 2
6	Peddapoorum,... ...	3	6,090	......	6,090	7,641	1,551	25· 7
7	Capavarum,...... ...	24	29,783	......	29,783	37,023	7,240	24· 5
8	Rajahmundry, ...	2	1,800	......	1,800	2,305	535	28· 1
9	Kottapalli,.	7	11,943	......	11,943	14,881	2,938	25·10
10	Lingumpurty,... ...	19	1,488	495	1,983	2,469	486	24· 9
11	Cocanada division, .	1	548	......	548	700	152	27·12
12	Pittapooram,.... do...	...	......	......	......	......	....	,...
	Total..	124	1,68,030	495	1,68,525	2,10,040	41,516	24·10
13	Mogultoor, ...	23	49,714	......	49,714	60,628	10,914	21·15
14	Woondy,...	22	37,074	.....	37,074	45,858	8,784	23·11
15	Tanookoo,..	22	50,419	......	50,419	61,747	11,328	22· 7
16	Todemulla, ...	14	6,887	1,810	8,697	10,949	2,252	25·14
	Total...	81	1,44,094	1,810	1,45,904	1,79,182	33,278	22·13
	Grand Total...	205	3,12,124	2,305	3,14,429	3,89,222	74,793	23·13
Particulars.	Talooks where the Lists were increased in consequence of irrigation being available. Capavarum,	1	1,230	.....	1,230	1,503	273	22· 3
	Bickavole,	7	15,602	......	15,602	19,456	3,854	24· 6
	Total...	8	16,832	......	16,832	20,959	4,127	24· 8
	Remaining.	197	2,95,292	2,305	2,97,597	3,68,263	70,666	23·12

Statement Comparative between Fusly 1254 and Fusly 1264, &c.

	Talooks.	Increase in the demand of Fusly 1263 above the former demand. — Villages in which the Per centage of increase is under Rupees 16-8						
		No. of villages.	Former demand.			Demand of Fusly 1263.	Comparison Cols. 26 & 27.	
			Demand of Fusly 1254.	Demand of other Fuslies.	Total.		Increase.	Per centage.
		23	24	25	26	27	28	29
1	Amlapooram,.... ...	17	41,590	......	41,590	45,234	3,644	8·12
2	Nagarum,..	12	23,253	......	23,253	25,291	2,038	8·12
3	Raly,.	14	29,891	......	29,891	31,750	1,859	6· 4
4	Kota Ramachendrapooram,..	24	55,542	8,313	63,855	68,843	4,988	7·13
5	Bickavole,.	8	9,904	......	9,904	10,663	759	7·11
6	Peddapoorum,... ...	6	14,289	......	14,289	15,816	1,527	10·11
7	Capavarum,..... ...	25	44,650	......	44,650	48,367	3,717	8· 5
8	Rajahmundry,... ...	11	22,634	......	22,634	24,880	2,246	9·14
9	Kottapalli,.	4	3,995	......	3,995	4,191	196	4·15
10	Lingumpurty,.. ...	17	3,666	838	4,504	4,940	436	9·11
11	Cocanada division,...	1	7	......	7	8	1	14· 4
12	Pittapooram do. ...	...	......	......	......	......	......	....
	Total...	139	2,49,421	9,151	2,58,572	2,79,983	21,411	8· 4
13	Mogultoor, ...	23	57,537	......	57,537	62,304	10,767	5· 5
14	Woondy,...	10	14,350	3,847	18,197	20,282	2,085	11· 7
15	Tanookoo,..	27	74,533	......	74,533	81,628	7,095	9· 8
16	Todemulla, ...	5	4,200	3,891	8,091	8,574	483	6·...
	Total...	65	1,50,620	7,738	1,58,358	1,72,788	14,430	9· 2
	Grand Total...	204	4,00,041	16,889	4,16,930	4,52,771	35,841	8·10
Particulars. Talooks were the Lists were increased in consequence of irrigation being available.	Capavarum,	2	2,650	.....	2,650	3,002	352	13· 4
	Bickavole,	7	6,677	......	6,677	7,087	410	6· 2
	Total...	9	9,327	......	9,327	10,089	762	8· 3
	Remaining.	195	3,90,714	16,889	4,07,603	4,42,682	35,079	8·10

Statement Comparative between Fusly 1254 and Fusly 1263, &c.

	Talooks.	Increase in the demand of Fusly 1263 above the former demand.						
		Total.						
		No. of villages.	Former demand.			Demand of Fusly 1263.	Comparison Cols. 33 & 34.	
			Demand of Fusly 1254.	Demand of other Fuslies.	Total.		Increase.	Per centage.
		30	31	32	33	34	35	36
1	Amlapooram, - -	71	89,598	.....	98,598	1,25,529	26,931	27· 5
2	Nagarum, - - -	42	79,583	....	79,583	1,00,313	20,730	26· 1
3	Raly, - - - -	32	64,736	....	64,736	76,752	12,016	18· 9
4	Kota Ramachendrapooram, - - -	35	72,860	8,313	81,173	90,846	9,673	11·14
5	Bickavole, - - -	38	65,308	...	65,308	1,06,712	41,404	63· 6
6	Peddapoorum, - -	14	34,516	.....	34,516	44,116	9,600	27·13
7	Capavarum, - -	78	1,14,105	.....	1,14,105	1,44,881	30,776	26·15
8	Rajahmundry, - -	16	30,535	......	30,535	36,617	6,082	19·14
9	Kottapalli, - - -	55	36,521	......	36,521	54,931	18,410	50· 6
10	Lingumpurty, - -	92	13,085	2,662	15,747	22,075	6,328	40· 3
11	Cocanada division, -	2	555	......	555	708	153	27· 9
12	Pittapooram do. - -	3	2,596	......	2,596	4,081	1,485	57· 3
	Total...	478	6,12,998	10,975	6,23,973	8,07,561	1,83,588	29· 7
13	Mogultoor, - - -	57	1,18,556	.....	1,18,556	1,41,191	22,635	19· 1
14	Woondy, - - - -	81	97,575	3,847	1,01,422	1,36,863	35,441	34·15
15	Tanookoo, - - - -	59	1,44,685	....	1,44,685	1,71,849	27,164	18·12
16	Todemulla, - - -	42	16,953	7,009	23,962	31,300	7,338	30·10
	Total...	239	3,77,769	10,856	3,88,625	4,81,203	92,578	23·13
	Grand Total....	717	9,90,767	21,831	10,12,598	12,88,764	2,76,166	27· 4
Particulars.	Talooks where the Sists were increased in consequence of irrigation being available. Capavarum,	7	19,720	....	19,720	27,548	7,828	39·11
	Bickavole,	35	59,413	.....	59,413	99,571	40,158	67· 9
	Total..	42	79,133	......	79,133	1,27,119	1,07,996	60·10
	Remaining	675	9,11,634	21,831	9,33,465	11,61,645	2,28,180	27· 7

Statement Comparative between Fusly 1254 and Fusly 1263, &c.

	Talooks.	Decrease in the demand of Fusly 1263 below the former demand.						
		No. of villages.	Former demand.			Demand of Fusly 1263.	Comparison Cols. 40 and 41	
			Demand of Fusly 1254.	Demand of other Fuslies.	Total.		Decrease.	Per centage.
		37	38	39	40	41	42	43
1	Amlapooram,... ...	7	24,098	....	24,098	22,151	1,949	8· 1
2	Nagarum,...	6	8,132	......	8,132	7,161	971	11·15
3	Raly,...	5	10,614	......	10,614	9,863	751	70· 1
4	Kota Ramachendrapooram..	19	43,708	16,061	59,769	53,858	5,911	9·15
5	Bickavole,...	9	21,576	......	21,576	16,779	4,797	22· 4
6	Peddapoorum,... ..	...	......	......	....	....	....	....
7	Capavarum,... ...	15	26,232	......	26,223	20,674	5,549	21· 3
8	Rajahmundry,... ...	2	4,525	.....	4,525	3,997	528	11·11
9	Kottapalli,..	1	730	......	730	600	130	17·13
10	Lingumpurty,... ..	5	160	1,406	1,566	1,030	536	38· 4
11	Cocanada division,...	1	1,991	......	1,991	1,730	261	13· 2
12	Pittapooram do. ...	...	......	......	.....	.....	.....	......
	Total...	70	1,41,757	17,467	1,59,224	1,37,843	21,381	13· 7
13	Mogultoor,...	7	15,290	....	15,290	14,634	656	4· 5
14	Woondy,...	5	4,412	.....	4,412	3,635	777	17·10
15	Tanookoo,...	1	3,000	.....	3,000	2,365	635	21· 3
16	Todemulla,..	3	3,772	.....	3,772	3,400	372	9·14
	Total...	16	26,474	.....	26,474	24,034	2,440	9· 3
	Grand Total...	8	1,68,231	17,467	1,85,698	1,61,877	23,821	12·14
Particulars. Talooks where the Sists were increased in consequence of irrigation being available.	Capavarum,	...	....	......	......	......	......	......
	Bickavole,	4	4,098	......	4,098	3,687	411	10·
	Total...	4	4,098	.....	4,098	3,687	411	10·
	Remaining.	82	1,64,133	17,467	1,81,600	1,58,190	23,410	12· 14

Statement Comparative between Fusly 1254 and Fusly 1263, &c.

	Talooks.	Demand of the former and present Fuslies being the same.				
		No. of villages.	Former Demand.			Demand of Fusly 1263.
			Demand of Fusly 1254.	Demand of other Fuslies.	Total.	
		44	45	46	47	48
1	Amlapooram, ...	..	......	...	......	......
2	Nagarum, ...	...	......	...	......	......
3	Raly, ...	1	245	...	245	245
4	Kota Ramachendrapooram, ...	1	1,225	...	1,225	1,225
5	Bickavole, ...	...	....	...	.....	......
6	Peddapoorum,..	..	......	...	......	......
7	Capovarum, ...	...	......	...	......	......
8	Rajahmundry,..	...	......	...	......	......
9	Kottapalli, ...	...	....	.	.....	......
10	Lingumpurty,..	11	......	55	55	55
11	Cocanada division,...	...	......	...	......	......
12	Pittapooram do.	...	......	...	......	......
	Total......	13	1,470	55	1,525	1,525
13	Mogultoor, ...	1	1,000	...	1,000	1,000
14	Woondy, ...	2	2,300	...	2,300	2,300
15	Tanookoo, ...	..	......	...	......	......
16	Todemulla, ...	...	....	...	......	......
	Total....	3	3,300	...	3,300	3,300
	Grand Total....	16	4,770	55	4,825	4,825
Particulars. Talooks where the Sists were increased in consequence of irrigation being available.	Capavarum,....	..	......	...	.....	......
	Bickavole, ...	...	......	...	......	......
	Total......	...	......	...	......	......
	Remaining....	16	4,770	55	4,825	4,825

STATEMENT COMPARATIVE BETWEEN FUSLY 1254 AND FUSLY 1263, &c.

	Talooks.	Total.						
			Former demand.				Comparison Cols. 52 & 53.	
		No. of villages.	Demand of Fusly 1254.	Demand of other Fuslies.	Total.	Demand of Fusly 1263.	Increase and Decrease.	Per centage.
		49	50	51	52	53	54	55
1	Amlapooram, ...	78	1,22,696	......	1,22,696	1,47,680	24,986	20·6
2	Nagarum,...	48	87,715	......	87,715	1,07,474	19,759	22·8
3	Raly, ...	38	75,595	......	75,595	86,860	11,265	14·15
4	Kota Ramachendrapooram,.	55	1,17,793	24,374	1,42,167	1,45,929	3,762	2·11
5	Bickavole,..	47	86,884	......	86,884	1,23,491	36,607	42·2
6	Peddapoorum, ...	14	34,516	......	34,516	44,116	9,600	27·13
7	Capavarum, ...	93	1,40,328	......	1,40,328	1,65,555	25,227	18·
8	Rajahmundry, ...	18	35,060	......	35,060	40,614	5,554	15·13
9	Kottapalli,.	56	37,251	......	37,250	55,531	18,280	49·1
10	Lingumpurty, ...	108	13,245	4,123	17,368	23,160	5,792	33·6
11	Cocanada division,... ...	3	2,546	......	2,546	2,438	108	4·4
12	Pittapooram do....	3	2,596	......	2,596	4,081	1,485	57·3
	Total...	561	7,56,225	28,497	7,84,722	9,46,929	1,62,207	20·7
13	Mogultoor, ...	65	1,34,846	......	1,34,846	1,56,825	21,979	16·5
14	Woondy,...	88	1,04,287	3,847	1,08,134	1,42,798	34,664	32·1
15	Tanookoo, ...	60	1,47,685	......	1,47,685	1,74,214	26,529	18·
16	Todemulla, ...	45	20,725	7,009	27,734	34,700	6,966	25·2
	Total ..	258	4,07,543	10,856	4,18,399	5,08,537	90,138	21·9
	Grand Total...	819	11,63,768	39,353	12,03,121	14,55,466	2,52,345	21·
Particulars. Talooks where the Sists were increased in consequence of irrigation being available.	Capavarum,..	7	19,720	......	19,720	27,548	7,828	39·11
	Bickavole,......	39	63,511	......	63,511	1,03,258	39,747	62·9
	Total...	46	83,231	......	83,231	1,30,806	47,575	57·3
	Remaining...	733	10,80,537	39,353	11,19,890	13,24,660	2,04,770	18·5

Total......	11,63,768	39,353	12,03,121	14,55,466	2,52,345
Cuttoobady of Agraharums, ...	7,401	......	7,401	7,401	......
Teerwajasti of Enams, ...	......	10	10	7	3
Cuttoobady paid by Moossulmans,...	191	......	191	191	......
Sist on Pruttepaud Sary, ...	250	......	250	266	16
Quit Rent,...	100	......	100	100	......
Tax on Timber from hill villages,.....	......	301	301	312	11
Half share in Timber of do.	36	......	36	50	14
Tax on spots near Rivers, ...	296	......	296	280	16
Grand Total....	11,72,042	39,664	12,11,706	14,64,073	2,52,367

Commissioner's Camp,
Rajahmundry,
6th *December* 1855.

(Signed) J. GOLDINGHAM,
Commissioner.

Memorandum of the Sheristadar of the Commissioner's Office.

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Para. 41. The above state of things is sufficient to give an idea of the inconveniences under which the Government officers and subjects labour. The only and true cause of such a state of things is over-assessment.

Assessment of the land in the different districts of the Northern Circars.

The average rates of sist on dry and wet lands and their proportions to the gross produce in each district are now to be shewn.

Names of Zillahs.	Average per acre of dry land.			Average per acre of wet land.			Average per acre of garden land.		
1	2			3			4		
	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
Ganjam...	1	6	...	2	11	9	1	2	3
Vizagapatam.	3	3	...	7	9	6	3	9	7
Rajahmundry......	3	...	10	3	10	2	7	6	...
Masulipatam.	1	..	...	3	...	8	4	15	...
Guntoor..	1	10	6	6	6	2	6	6	4
Total......	1	12	3	3	12	3	5	...	4

The extent of land entered in the accounts not having been measured, the average sist shewn in the above statement is effected thereby.

The capabilities of lands and the crops raised on them vary considerably. Fertile soils may be said to yield two crops but their fertility in a manner depends on the condition of the Cultivator. The land occupied by a Nâdar or poor ryot though it may be of the same quality as that taken up by his richer neighbour will not be so productive as the latter. Considering that the seasons are sometimes adverse, and that diseases are common to crops, it cannot be expected that good crops will be produced every year. Prices being dependant on the state of the harvest, and on other circumstances also fluctuate. The extent of land not being correctly determined the assessment has never been framed according to rule. It will be admitted that it is no small difficulty, to ascertain the share or per centage enjoyed by the ryot and paid by him to Government.

The following Statement however which shews the rates in 3 large districts has been prepared with great attention to accuracy.

Items.	Names of Zillahs.	Average produce in an Acre. — Annual Produce. — Grain.			Average rate per Pooty.			Value.			Amount of 5 years value.			Deduct one out of 5 years on account of bad seasons.			The remainder.			Average per year.			If the sircar share be $\frac{1}{2}$.			If the Sircar share be $\frac{1}{3}$.			Average Sist per Acre. — Average sist on the land at present.			Average sist inclusive of sist paid on Bunjer or waste.		
	1	2			3			4			5			6			7			8			9			10			11			12		
		P.	T.	M	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
Dry.	Rajahmundry	...	14	...	9	...	...	6	2	3	30	11	3	6	2	3	24	9	...	4	14	7	2	7	3	1	10	2	3	2	...	4	4	...
	Masulipatam	...	5	...	13	...	...	3	4	...	16	4	...	3	4	...	13	...	...	2	9	7	1	4	9	...	13	10	1	...	...	1	13	...
	Guntoor	...	5	...	20	...	...	5	...	...	25	...	...	5	...	...	20	...	...	4	...	...	2	...	...	1	5	4	1	10	...	2	1	...
Wet.	Rajahmundry	1	8	...	10	...	...	14	...	...	17	...	...	14	...	...	56	...	...	11	3	2	5	9	7	3	11	9	3	10	2	5	...	...
	Masulipatam	...	15	...	11	...	...	8	4	...	41	4	...	8	4	...	33	...	...	6	9	8	3	4	10	2	3	3	3	...	8	5	10	...
	Guntoor	...	12	...	20	...	...	12	8	...	62	8	...	12	8	...	50	...	...	10	...	...	5	...	...	3	5	4	6	6	2	6	10	...

It is admitted by the Local authorities of Rajahmundry that the sist or assessment on dry land is heavier than that on wet land, but in the Masulipatam and Guntoor districts the sists are more favorable to the ryot. The sist payable to Government appears to be less than ½ but more than ⅓ of the probable outturn of a year but including Bunjer (Waste) the sist on the whole is ⅔. In Ganjam and Vizagapatam the sists are believed to be more favorable. It is worthy of remark that if the ryots had not derived some benefit by occupying on favorable terms Enam lands, it would be impossible for them to bear the Government assessment.

42. The Government have given orders for the revision of the Assessment in some of the Districts which was formerly fixed by their Officers on a regular survey; but the Northern Circar Districts though laboring from the beginning from defects of management have not had the good fortune of being surveyed and assessed, but the matter has been in contemplation for some time past.

Principles on which the future management should be carried out.

43. A moderate assessment and a reformation of the present modes of administration are the two essential things which will advance the prosperity of these Districts. The following are the points to be attended to.

1. Measurement of lands as Khandams with permanent boundaries.

2. Fixing a moderate assessment on them so as to be enjoyed by ryots as private saleable property.

3. The annual Amarakam* and Jamabundy to be discontinued, the Puttahs of ryots running for a period of 25 or 30 years or in permanency.

* *Dittum or engagements at the commencement of the year.*

4. A new kistbundy fixed for such periods as the cultivator gets the value of his produce, so that he may not be in need of the aid of Sowcars or money lenders.

5. Abolition of the interference of the Public servants with the ryots.

6. Entrusting the collections of the village revenue to the curnums and head ryots raising their emoluments adequately to their responsibility.

7. Maramut or repairs of works of importance to be executed at Government expense, but minor works of small cost to be maintained by the ryots who should also preserve them from being damaged.

8. Education to be diffused generally. The effects of the aforesaid reforms if carried out will be :

1. Relief to the over-burdened Public Servants.

2. The discontinuance of the present numerous accounts.

3. Benefit to Government by reductions of the present Establishments.

4. Additional time for enquiring into the complaints of the people and affordiug justice.

5. As the interference of the Government Public Servants ceases corruption will also disappear, and the public management will be viewed with satisfaction.

6. Ryots will be saved the trouble of attending for the Atukubody and Jamabundy duties.

7. Their condition will be ameliorated.

8. Ryots will have few dealings with money lenders and will not be drawn into Courts. It may be added that the business of the Courts willl be lightened.

9. Ryots when they acquire substance will be anxious to educate their children which with the aid and encouragement of government may be fully effected.

10. With the spread of knowledge crimes must diminish and the heavy work of the Police and Magistrate Offices will be consequently diminished.

44. Before speaking of the different modes of surveying it is desirable to give a view of the present extent of land, &c.

The Northern Circars comprize as per Curnums' accounts an area of 58,08,656* Acres. This is an estimate of the Curnums, the actual extent may be more or less. It is a common saying that the land has never been surveyed but the existence of the different standards of measurements furnishes grounds for questioning this assertion. Even in former days lands, when disputes arose, were measured and these standards of measurement therefore should be considered as old and not recent.

* *See appendix No. 5.*

		Goodicutt Acres.
Porampoke		18,62,326
Arable land.		
Jeroyaty,	28,36,796	
Enams,	11,10,534	
		39,46,330
		58,08,656
Cultivation of Fusly 1263.		
Jeroyaty	19,26,115	
Enam,	7,41,013	
		26,67,128
Bunjer.		
Jeroyaty,	9,09,681	
Enams,	3,62,521	
		12,79,202
		39,46,330

In Ganjam the measurement is as follows:

1. Garce.............................2. Acres.
2. Burnums is.........................$\frac{1}{5}$ of do.
3. Mano.................................

In Vizagapatam.

	Acres	Coontas
Garce	1	9.
Cutty	31	8.

In Rajahmundry the Puti is the general standard of measurement, but there are 8 different equivalents to the Pootty varying from As. 5 C. 32 to As. 10 C. 39 according to localities.

In Masulipatam the Cutty is the only standard. It varies from 11 to 17 Acres.

In Guntoor the Cutchell varies from As. 14, C. 16, to As. 21, C. 6. The terms denoting the land measures used in each District vary, and there seem to be reasons for this, Garce, Burnum, Puti, Mano, are also measures of capacity for grain. The terms as applied to an extent of land signifies that such extent is capable of yielding the quantity denoted by it. The term Cootchela also seems to have derived its origin in this way, as it signifies a heap of grain. Cutti is as much land as could be cleared and brought under the plough, by a single individual.

45. There are also terms peculiar to each District denoting a plot of land or field, and each field is known by some name.

The terms donoting a plot of land or field are as follows:

In Ganjam.
Istway Pada.
In Vizagapatam.
Istwa Pumpoo.
In Rajahmundry.
Istwa Pumpoo Khetoo.
In Masulipatam.
Khandam
Polam.
Chenu.
Pumpoo.
In Guntoor.
Yagattu.
Khandrica.
Savaram Dry land.
Yiduva.
Pumpoo.
Dompa.
Madi. Wet.
Pumpoo.

These names had their origin in this way, viz.

1. In Odya, Pada is the same as Chenu, Polam, Madi. All these signify fields, and are used also in other parts of the country from time immemorial.

2. Istwa signifies property. Land cultivaled by the ryot himself is Savaram.

3. Pumpoo, Khandam, Yiduva and Dumpa are the same. These names were adopted when lands were first divided among the ryots.

46. Each field again has an appropriate name, perhaps called after its first occupant. In some cases the quality of the soil itself, gives a name to the field such as Badava Chènu or Madi, Kari Chènu, Yistra Chenu all referring to its quality other fields take their names from a tree or some other peculiarity about them such as Puttagudda Chénu Devalam Chènu, Jummemanu Chenu, Chervu Madi, Chervuhinda Pumpoo, Dova Chénu, generally the boundaries of each field in the village are known to the Head Ryot, Taliary and other individuals.

The boundary marks are generally ridges, some times, hedges, public roads, or any other feature, that will answer the purpose. Some fields are without any boundaries. There are also names for the sub-divisions of a field.

A field called Jangampolem of A. 3, C. 15, has the following subdivisions with separate names for each.

	G.	P.	
Catteparadu Mallu,........	,,	5	
Callala Mallu,...........	,,	6	
Autru Polam,......	,,	20	
Pallapupolam,......	1	20	
Yiskapolam,..............	,,	2	A. G.
	2	23	3 15

Size of fields at present. 47. Considering it necessary that the sizes of fields should be known, and the number of its cultivators in order to form a judgment as to how a general survey should be made the lands of 19 villages are classified below.

Classification	Number of dry fields.	Number of wet fields.	Total.
Above 100 Acres.	4	3	7
Do. 75 do.	5	5	10
Do. 50 do.	8	11	19
Do. 40 do.	9	10	19
Do. 35 do.	3	4	7
Do. 30 do.	11	7	18
Do. 25 do.	13	6	19
Do. 20 do.	26	15	41
Do. 17½ do.	23	8	31
Do. 15 do.	22	17	39
Do. 12½ do.	21	16	37
Do. 10 do.	51	33	84
Do. 7 do.	122	65	187
Do. 5 do.	92	45	137
Below. 5 do.	461	...	461
Do. 2 do.	...	99	99
Do. 2 do.	...	220	220
Total...	871	564	1,436

Fields are thus of different dimensions without any limitation or restriction. The number of fields and division of fields go on increasing as lands are sub-divided among the ryots.

In the Northern Circars as well as in other places good and bad lands are equally apportioned between the ryots, but the mode in which this is done in Ganjam is peculiar to that District. Thus in a village, which has 7 Padas or fields and 36 inhabitants, each Ryot has a share in all the Padas. In other Districts fields consisting of bad and good soils, are apportioned, but when the field is too large to be held by one person it is occupied by two or more individuals. The following are particulars of holdings occupied by one or more individuals in 16 villages of the Northern Circars.

	Classification of Ryots.	Number of fields.
1	Cultivated by one Ryot.	831
1	Do. From 2 to 5 do.	349
1	Do. do. 6 do 10 do.	89
1	Do. do. 11 do 15 do.	32
1	Do. do. 16 do 20 do.	17
1	Do. do. 21 do 30 do.	15
1	Do. do. 30 above do.	15
		1,348

Modes in which Survey of the lands has been carried out in other Districts.

48. It was pointed out by the Honorable the Court of Directors that it might be well to conduct the Survey and assessment of the Northern Circars according to the method observed in the Chittagong District. In the Cuttack district each Ták or portion of a field seems to have been measured as a separate number, as is shewn in the following cases.

Name of field.		Direction.	Names of Ryots.	At 25 Coontas per Mano.		
1	2	3	4	5		
Belloo Lopoo	1		Tooly Poly...	1	24	2
	2	East......	Lachamna Poly........	1	20	11
	3	do.	do.	4	16	...
	4	North... ...	Poore Poly...	1	23	...
	5	do.	JaganadhaMahoPotro	2	13	...
				12	21	13
Jalee Bhoony	6	East	Jaladhara Poly... ...	2	19	9
	7	do.	do.	...	8	4
	8	West	Patee to Poly...	2	2	...
	9	North... ...	Haree Poly......... ...	4	...	10
				9	5	7

It will be observed from this that the measurement and numbering was without reference to the holding of a ryot or to the extent of

the field itself, but in detached portions and without appropriate boundary marks in substitution of the former ridges of earth.

Survey of the Ceded Districts.

49. The Survey of the Ceded Districts is spoken of as having been conducted in a manner superior to that of the other districts of this Presidency, but it does not appear to have been made according to any fixed rule; such as a separate number to each field, or the extent actually occupied by each individual, or to what each might conveniently occupy.

The following Statement shews the measurement to have been made by the Surveyors according to their own convenience at the time.

Items.	Classification.	Number of fields.	Average of Acres per No.	
1	2	3	4	
Dry	Below 20 Acres	1,90,490	8	14
	Do. 40 do.	46,539	27	37
	Do. 60 do.	11,966	48	13
	Do. 100 do.	5,907	75	15
	Above 100 do.	6,066	205	32
	Total...	2,60,998	19	32
Wet	Below $2\frac{1}{2}$ Acres	54,770	1	4
	Above $2\frac{1}{2}$ do.	16,401	3	24
	Do. 5 do.	9,278	7	21
	Do. 10 do.	1,448	21	25
	Total...	81,897	2	27
	Grand Total...	3,42,895	15	28

After the survey was completed Sir T. Munro contemplated a revision of the size of fields in the manner following.

20 Acres of dry land if assessed highly to form a field.
40 If otherwise.
5 Do. of wet do. do.
10 If otherwise.
5 Do. of Garden.

It was his wish to reduce all large fields to this standard, but that plan was never carried out.

Fields of a small size as well as portions of large sized fields were occupied but in neither case wholly cultivated.

The following statement gives these particulars.

	Items.	No. of Fields.	Average extent per number surveyed.		Average extent cultivated	
1	2	3	4		5	
A whole number or parts of large number occupied by a single Ryot.	Full No. as per Puttas......	1,36,757	7	34	6	24
	Portions of a do. as per do..	28,672	23	17	5	36
	Total...	1,65,429	10	22	6	19
Held by more than one Ryot.	Full Nos. as per do..	45,530	11	3	9	33
	Portions as per do.......	15,656	41	35	14	14
	Total...	61,186	18	39	11	0
	Full Nos. as per do,.......	1,82,287	8	27	7	16
	Portions of No. as per do....	44,328	29	38	8	36
	Total...	2,26,615	19	33	7	10
		1,16,280				
		3,42,895				

50. At a charge of Rupees 15,838 three Talooks in Ganjam were surveyed in 1836 and 1837, but then the component parts of a field were made into useless separate numbers. The boundaries of these numbers are not known now to the villages. The number of occupants of each number then, and now, is not the same. As may be perceived from the table given below.

Name of the Talooks.	Name of the Village.	Items.	Name of the field.	Nos. measured.	Acres of Land.		No. of ryots at the survey time.	No. of ryots in Fusly 1259.
			1	2	3		4	5
					A.	C.		
Pubbakonda Talook.	Rajahpuram.	Dry.	Sattee Pahado......	2	4	26	14	17
			Tovala obeyopauhada..........	1	4	4	13	17
		Wet.	Baurnsamoolo Punchavanopahas	6	28	9	13	17
			Nongondepahodu	5	26	18	10	11
			Caracunta Pahado..............	14	7	4	16	14
			Anapoorapahada.	3	8	6	19	21
	Cochoor.	Dry.	Pooroovapodars.........	1	6	38	22	36
			Tottapodaro	2	1	24	15	31
			Gungulaballapodaro....	4	12	19	22	34
		Wet.	Doobbabully........	3	7	28	18	29
			Chitta Moonda......	8	51	38	38	35
			Sadhaballee..........	1	0	11	11	5
			Manlee Bundoo..........	13	64	31	31	32

South Arcot.

51. From the appendix of the printed report of the Revenue Board dated 27th February 1854 and approved by Government on the 8th September it is learnt that in the survey now in progress each field is measured as a separate number which mode it is supposed, will answer the purpose in that district where the lands are in the occupancy of Merassidars who have a permanent right to them.

Bombay survey chain measurement, Captns. Wingate and Davidson.

52. The survey Superintendents in Bombay have discussed the modes of measurement in paras. 11 to 17 of their Report dated 2d August 1847. With the object of generally not disturbing the existing holdings, as far as possible, they have proposed that the quantity of land which may be ploughed by a pair of bullocks should be made a holding, and observed that this rule should not be made applicable to waste lands; which may be made as large as desirable. These proposals were reviewed by the Revenue Commissioner in para. 3 of his letter dated 30th September 1847. Thus it is clear that the new measurement there and rule regarding numbers of fields was not in strict conformity with ancient usage.

53. From the foregoing examples it does not appear that the different serveys noticed have been made in a regular way. In a survey of the Northern Circars a plan in no way opposed to the usages of the country should be adopted. If each field as it is now found, one being in size one acre and others acres 100 and upwards, and is to be made a separate number, the extent will be too small in the one case and too large in the other for a ryot to occupy.

An attempt to divide the larger fields to meet the occupancy of a man would be of no benefit, for the extent considered sufficient as well as that less than sufficient for one man, are subdivided and enjoyed by several persons.

To make all fields of one size, viz. an extent which may be brought under cultivation by a single individual would be opposed to local usage, as already mentioned there are shares in the smallest lands also.

Fields as at present enjoyed will not remain so for ever, it will be vain therefore to measure them as the one at the present occupied by ryots. Such a course would also tend to multiply the number of fields.

The same field contains different qualities of soils; it would not be practicable therefore to make separate numbers for each description of soil.

There are two great obstacles at the present moment to a survey in these parts. The enquiry into enam tenures and the change of crops with the waters of the annicuts.

In the Northern Circars unauthorized grants of enams and encroachments on Zeroyety are many.

If a survey is to precede the enam investigation, the boundaries would be fixed to Zeroyety and Enams according to present enjoyment, and would require to be changed after the enam investigation, as some of the latter description of lands would be resumed.

Enam enquiries on the other hand if commenced before the survey will take up much time and postpone the latter work indefinitely.

The full extent of dry land that will be converted into wet by means of the annicut water cannot be determined for a long time.

Considering all these circumstances only one plan suggests itself, which will not be subject to any of the objections above detailed. It will cost little compared with other modes of survey, and it will facilitate the introduction of a sound system of management. It consists in measuring the lands of each village according to existing Khandams, or sub-divisions, a village having 5-8-10, 15 and 20 Khandams as the case may be with permanent boundaries. This is an ancient system and not a new one, as may be inferred from the following table.

District.	Villages.	Number of Khandams.	No. of field in each Khandam.	Land.			Remarks.
				Zeroyety.	Enam.	Total.	
Ganjam	Purushottapuram.	3	3	239	...	239	Wet.
	Nowgam.	4	4	300	...	300	do.
Vizagapatam.	Kondahirla.	6	97	380	...	...	Dry & Wet.
	Horepalem (Hamlet.)	6	60	319	...	...	do.
	Jagumapett Do.	4	46	267	...	...	do.
	Yarravaram, Do.	4	73	409	...	...	do.
	Appanapalam, Do.	1	24	159	...	...	do.
	Malupaka.	5	172	1249	...	...	do.
Rajahmundry.	Paucherlapudi.	5	5	464	440	904	Dry.
	Vallapalum.	30	78	1414	...	1414	Dry & Wet
	Rajahmundry.	3	3	782	276	558	Dry.
Masulipatam.	Inteega.	23	34	751	...	751	do.
	Pratur.	12	47	531	...	531	do.
Guntoor.	Korugulu.	16	16	1200	1200	...	do.

Districts.	Talooks.	Villages.	Land.	Sist.
	Nagaram,	Chattamullipudi Savaram.	...	590
	Koto Rama.	Ramachendrapooram, ...	...	915
	Chendra,	Khundreka, ...	...	1000
Rgjahmundry.	Pettapore,	Pruttepausery,...	...	266
	Mogultoor,	Sarepalem, ...	...	660
	Raly,	Khandrika Agraharam,...	...	397
	Pentapaud,	Chabrole Khandrika, ...	...	130
		Davaracheve do.	...	25
		Veepurty, do.	...	51
Masulipatam..	Rabunghy,	Khandrika, ...	...	412
		Jeelugudar Khandrika, ...	...	135
	Kykaloor,	Padvia Khandrika,... ...	...	516
	Guntoor,	Marahodar Khandrika,...	301–13	250
Guntoor.	Condaveed,	Vamavaram do.	517–13	511
		Visvanadhune Khandrika Agraharum, ...	304–14	323

It will be seen that a Khandam may contain several fields with enams also. The instances given in the margin shew that, a village or a hamlet a Khandrika, a Seri, and a Savaram each a Khandam.

In some villages there are 3 or 4 companies of ryots, called Jimmas or Moothas, each company under a head man or Pettaudar. To one or the other of the Jimmas all the ryots belong and receive the assistance they need from the head man of the Jimmas who also is held responsible for the dues of the ryots of his division. Both Khandams and Jimmahs are well suited to a sound sytem of management.

Khandams. 54. Where Khandams do not already exist they should be marked out at the time of measurement, each Khandam will be fixed with reference to soils, shape and general compactness: as a general rule it may be of the following dimension.

Dry land 200 acres.
Wet do. 50 do.

Any that may be larger at the present time must be left as they are. Garden land irrigated under wells, being scattered here and there it may be found difficult to form it into a Khandam; but as it is intended to class such land as dry hereafter, it may be included in the neighbouring dry land.

55. A Khandam may comprise cultivated waste and enam land thus;

	Number of Ryots.	Acres.	
Samudralameds, ...	2	18 cultivation.	Wet land also should be divided into Khandams on the above principles.
Pichegullapalle, ...	3	13 do.	
Pasupumadepumpu, ..	6	36 do.	
Vadabodepumpu,......	3	34 do.	
Vatarabadavapumpú,.	8	22 do.	
Chenalunkapumpú,....	1	34 do.	
Vagralamadepumpú,..	3	25 cultivation and enam.	
Vuredharipumpú, ...	...	20 Bunjer.	
	26	202	

As a general rule, where new Khandams are formed whole fields should be included in the same Khandam. By this the customary fields will be preserved and the ryots attached to them will be able to cultivate their lands.

56. The difference between the English and Hindoo methods of measurement may be assumed at 10 per cent. which is very inconsiderable. The English mode of surveying is very expensive, but is preferred by the generality of European officers. The boundaries may be first determined and then the khandams according to which the requisite Maps may be prepared.

57. The preservation of boundaries being more essential than a correct survey, it is advisable that pillars of masonry work 1½ feet in foundation 3 feet in length and 3 feet in breadth should be constructed at the corners of the Khandams. On the 4 sides a bank of earth one foot high may be raised and planted with palmyras, which when grown will serve as a permanent boundary. Lands are sometimes from their situation low, and therefore if the ridge be higher than 1 foot the rain and flood water will stand in them and do injury. On the Palmyra trees springing up the ridge may be removed.

58. It does not seem necessary at first to measure separately the dry, wet, and enam lands which form a Khandam as it can be done after the enam investigation and after the full operation of the Annicut has been experienced in changing the dry lands to wet, without entailing any charge on the Government. The correctness of the measurement of the component parts will be tested by the ascertained contents of the entire Khandam.

59. The objections against the measurement of the component fields or shikimi measurement mentioned in the preceding para. will not occur in every case; but where they occur if dealt with according to the following rules the shikimi number measurement may at once be carried on.

A general investigation of enams simultaneously with the survey would remove all difficulties about the measurement being disturbed at a future time. If the present time is not considered a fitting opportunity to commence these enquiries, the enams may be measured as at present enjoyed, and should during the investigation hereafter, any enam wholly or partly be declared to belong to Government, the same may be made over to the former owner at a light rent as was done in Cuttack, and thus prevent the changes in the measured extent.

The conversion of dry crops into wet under the influence of the annicut waters of the Kistnah and Godavery occurs only in the Delta talooks. Still the shikimi number measurement of those lands may be made, and when a change in the produce takes place the collection of a Teervajasti separately removes the above objection.

60. The measurements of shikimi numbers can be made by the Curnums and Samutdars who meanwhile will be instructed in the manner of surveying.

The measurement of the component parts of a Khandam would not be required when it is occupied by one individual, or when its several occupants divide the grain among themselves. But when land is possessed by more than one ryot under any other arrangement this necessity exsists. Even then, it may be settled among themselves when however the ryots desire the measurement it will be necessary to comply with their request.

In such Khandams as consist of dry, wet and enam lands as well as waste, the measurement of each description at some time would be desirable, as these particulars should be known.

Assessment.

61. If the assessment is to be regulated according to tarams or soils, the particulars of each class of land as dry, wet, &c., must be ascertained; but the question is how is this to be effected. Are the different sorts of land of the whole Khandams to be classified without reference to holdings, or is the classification to follow the occupation of each ryot,

If it is said that the classification should be made according to each ryot's occupation, it must be remembered that holdings are not permanent. The subject should be further considered with the ryots, after the Khandams are properly fixed.

62. A few instances of the mode in which the classification and assessment have been conducted and their good and bad effects in some Districts are now to be considered.

Cuttack.

Information of the manner in which the lands of two talooks of Khurda and Jagannad are classified has been procured. Khurda has 3, 4 and 5 Tarums for each Village, while Jagannad has 15, 20, 30 Tarums and upwards owing to its assessment being, under the Commissioner's orders, regulated on the different crops raised in one crop and two crop lands. That the assessment was not properly fixed will be seen from the following:

			At 1 Rupee per man.	
1st	Class 2 crop land		3	2
2d	do.	do.	1	14
3d	do.	do.	1	9
4th	do.	do.	1	4

The difference between the 1st and 2nd rates is large and does not seem reasonable; waste lands were left without any assessment. From the enquiries made, it is understood that the assessment of Khurda talook is moderate while that of Jagannad is high.

Ceded Districts.

Tarmdars were appointed for the classification of lands who went to each village and with the Potels and Head Ryots fixed the Tarums-Sur Taramdars and Hoozoor Officers examined these and fixed the assessment. Sir T. Munro found it necessary to reduce this assessment while in charge of the Ceded Districts, and he recommended to the Board in 1807 a permanent remission of 25 and 30 per cent. from the survey assessment of which he was the author. From 1823 these remissions have been given and a further reduction is now deemed necessary. Villages at that time highly cultivated are now desolate, because the rate of assessment was high, while those which had waste land then have since thriven from the assessment being moderate.

Fusilies.	Villages wholly cultivated at the time of the Survey.					Villages in which there was much waste at the time of the Survey.				
	Gummunurie.	Yiruru.	Bantanahal.	Medehal.	Deglahal.	Kanchgar Belgal.	Dingadahalli.	Gejjehalli.	Bhandarahal.	Sante Kullurie.
1	2	3	4	5	6	7	8	9	10	11
Tarm Beriz......	Rs. 5,877	Rs. 6,939	Rs. 5,154	Rs. 2,602	Rs. 2,640	Rs. 592	Rs. 257	Rs. 1,908	Rs. 508	Rs. 2,572
	Collection.									
1215	5,317	6,948	5,370	2,605	2,410	534	227	1,779	438	2,476
1224	4,667	4,958	3,202	2,494	2,187	875	671	1,954	517	2,100
1233	680	1,767	720	1,275	476	814	516	2,640	508	2,324
1242	100	1,205	633	927	163	1,698	1,035	2,275	831	2,660
1251	2,088	4,346	1,502	1,552	1,500	2,782	1,772	4,209	959	4,500
1258	2,144	3,996	1,616	1,199	1,744	2,581	1,712	4,518	1,056	4,733

The survey assessment it is thus seen was not regularly framed with reference to the intrinsic quality of the soil.

In other districts.

In the Madura District no sooner was a survey assessment made than a proposal for its reduction followed. The same occurred in the

South Arcot and Salem Districts. As the matter is generally known, it is unnecessary to cite other Districts in which the assessment has been ordered by Government to be reduced in consequence of its being too heavy.

63. The assessment hitherto existing having thus been burdensome to the ryot and detrimental to the interests of Government proving in the end a failure in many instances, as above noticed, it is necessary to devise some plan not open to these defects. One sixth was fixed as the Government share in the Hindu Books, but the Mahomedans raised it to double or $\frac{1}{3}$. A share in kind does not injure the cultivator but the payment of a heavy fixed money rent irrespective of seasons is injurious as explained in former paras. The assessment levied in the Northern Circars during the past 3 or 4 centuries is very heavy, its reduction to $\frac{1}{3}$ of the gross produce will ameliorate the condition of the cultivation.

64. * * *

65. There appear to be three modes of assessing lands, &c.

1st. Fixing a demand on the village and leaving it to be apportioned on each Khandam and the holdings of ryots by themselves, subject to supervision.

2d. Fixing an assessment on each Khandam and leaving it to be apportioned by the ryots among themselves according to their shares subject to supervision.

3d. Classifying each description of soil contained in the Khandam and assessing it with suitable rates.

Basis on which the assessment is to be framed.

66. The basis on which the assessment is to be fixed whether on the entire village or on each Khandam, must be first determined. The assessment cannot be framed alone on the produce, as the yield of one year is not the same as that of another, and the accounts of produce are not trustworthy. Prices also from their fluctuation are as unstable as the crops. Past collections cannot be taken as a proper basis, because the occupation of lands by the ryots is not the same every year, and remmissions also are granted in some years on a consideration of the nature of the season. Under these circumstances, either of these sources of information cannot

be taken as the basis for an assessment, but they will serve as collateral data for the purpose. The practice of collecting the revenue in money in the Northern Circars has prevailed from ancient times, no better foundation therefore for regulating the demand of Government than the present sists can be found.

67. Inclusive of Bunjer sist, the assessment now paid by ryots may be generally computed at ⅔ and the share left to them at ⅓ of the gross produce; but in the Ganjam and Vizagapatam Districts the sists are a little more favorable as observed in para. 40 of this memo. If the assessment be examined in detail by villages it may appear more favorable in some localities. It will be necessary to enhance the present assessment in places where the means of irrigation are improved, to make then a general reduction at an uniform rate from the present assessment is not to be thought of. The sists should be fixed, with great care on a consideration of the present assessment, and the likelihood of crops being changed by the new irrigation works.

68. It will not be necessary to make a reduction larger than ⅓ in villages which are most heavily assessed, while in others where the sists are not so heavy a reduction of ¼ or ⅕ or ⅙ will be sufficient. To bring down the present Government demand to ⅓ of the gross produce, the reduction on a village or a khandam will range between ⅓ and ⅙. If the sists are revised on these principles at an approximation, the inhabitants can apportion the same on their lands in detail with reference to their qualities.

Mode of fixing the demand for a whole village.

	Rupees.
* Kham sist of the land occupied by ryots	621
Sist of Fusly 1264	574
Deduct one third	191
Remaining two thirds	383

69. In explanation of the manner in which a collective demand may be fixed on a whole village and the same apportioned by the inhabitants on the Khandams and fields, a hamlet called Nagarazpalli* is given as an example.

† Past years' Collections.

Fuslies.	Collections Rs.
1254	467
1255	453
1256	496
1257	466
1258	455
1259	643
1260	574
1261	548
1262	571
1263	555
Total	5,152
Average	513
Deduct one fourth	128
Remainder	385

Estimate of produce.

Land Tarums	Extent in acres.	Average produce per acre.	Potties of produce.
1st sort	220	4	44
2d do.	160	3½	28
3d do.	90	3	13½
			85½

	Rs.
Value at the average price of Rs. 12 per Pootty	1,026
Sircar share one third	342

It will be observed from the marginal figures †that the remainder in the aggregate sist of Fusly 1264 after the deduction of ⅓ amounts to Rupees 383. As the cultivation during the past 10 years was not uniform but fluctuating, and as the remissions also were granted periodically, a deduction of ¼ in the average collections gives a result of Rupees 385. The assessment fixed on an estimation of the crops would give Rupees 342. Thus an assessment of Rupees 385 instead of Rupees 383 which is two thirds of the present beriz may be permanently fixed and left to the ryots to apportion on the occupancy of each, in the Khandam according to the Tarums or productiveness of fields.

The ryots of the village may make the apportionments in the following manner.

A.				Occupied by the ryots.												Particulars.						
Name of the Khandam.	Description of land and soil.	Extent of land on measurement.	Enam included.	1st class 1 Rupee,		2d class 12 annas.				3rd class 8 As.		Total.				Cultivated				Unculti-vated.		Cultivating ryots.
				Land.	Sist.	Land.	Sist.			Land.	Sist.	Land.	Sist.			Land.	Sist.			Land.	Sist.	
1	2	3	4	5	6	7	8			9	10	11	12			13	14			15	16	17
		A.	A.	A.	Rs.	A.	Rs.	A	P.	A.	R.	A.	R.	A.	P.	A.	R.	A.	P.	A.	R.	R.
Khandam east of the village……………	Dry, Nulla Regada and Pulludu……………	120	20	50	50	30	22	8	…	20	10	100	82	8	…	100	82	8	…	…	…	4
Sery Khandam…………	Do …………	150	30	40	40	60	45	…	…	20	10	120	95	…	…	100	85	…	…	20	10	5
Gurlda Khandam………	Dry Pulludu……… ……	100	…	80	80	20	15	…	…	…	…	100	95	…	…	100	85	…	…	…	…	3
Do. South of the village……………………	Nulla and Tellah Regada………………	200	50	50	50	50	37	8	…	50	25	150	112	8	…	110	92	8	…	40	20	6
		570	100	220	220	160	120	…	…	90	45	470	385	…	…	410	355	…	…	60	30	…

After each Khandam is assessed in the above manner, the same will be apportioned on the holding of each individual of the Khandam. The Khandam east of the village is given as an example :

B. Names of ryots	Name of the field.	1st Class.		2d Class.		3d Class.		Total.	
		Land.	Sist.	Land.	Sist.	Land.	Sist.	Land.	Sist.
1	2	3	4	5	6	7	8	9	10
		A.	R.	A.	R.	A.	R.	A.	R.
Naganah,...	Jamoni ... Manie, ...	20	20	5	$3\frac{3}{4}$	5	$2\frac{1}{2}$	30	$26\frac{1}{4}$
Tummaya,.. ...	Mula, ...	10	10	20	15	...	...	30	25
Mullaya,... ...	Putta,.........	8	8	...	...	10	5	18	13
Yerraya,.... ...	Remda,.......	12	12	5	$3\frac{3}{4}$	5	$2\frac{1}{2}$	22	$18\frac{1}{4}$
Total...		50	50	30	$22\frac{1}{2}$	20	10	100	$82\frac{1}{2}$

The Statements A. and B. are intended as an example. The Tarums entered therein as 1st, 2d and 3d may in the District scale be 10, 12 and 14 Tarums.

In the classification of lands it should not be lost sight of that the talook tarums of dry should be limited to 10, and the District tarums to 15. The aggregate rates should be within these numbers.

Besides lands occupied by ryots on which sists are apportioned as above, there are unoccupied waste lands which should be retained separately as the property of Government, should any portion of land of this description be included in the Khandams, a sist should be charged for it separately.

2d mode of assessment.

70. In fixing sist for each Khandam the present assessment, past years collections and the value of the crops on estimation, are to be taken into consideration, and deducting one third of the present assessment the remainder or Rupees 83 as noted in the margin

	Rupees.
Sist of Fusly 1264	124
Deduct one third	41
Remainder....	83

Collections from the cultivators of the Khandam during the past Fuslies

Fuslies.	Rs.	A.	P.
1254	100	...	...
1255	90	...	...
1256	65	...	...
1257	95	...	...
1258	97	...	...
1259	124	...	...
1260	124	...	...
1261	95	6	...
1262	119	...	...
1263	115	6	...
Total......	1,024	11	...
Average...	102	8	...
Remainder......	77		

Estimate of produce.

Land Tarums.	Extent in acres.	Average produce per acre.	Potties of produce.
1st class	50	4	10
2d do	30	$3\frac{1}{2}$	$5\frac{1}{2}$
3d do	20	3	3
			$18\frac{1}{2}$
			Rs.
Value at the average price of Rupees 12 per Pootty			219
Sircar share one third			73

may be assumed as the assessment of the Khandam, leaving it to the ryots to apportion the amount among themselves on the lands held by each with reference to the quality of the soil. The mode in which it is to be apportioned by the ryots on each portion occupied by them is as follows :

Tarum or Classes.	Nagana. Land. A.	Nagana. Sist. R.	A.	P.	Tummaya. Land. A.	Tummaya. Sist. R.	A.	P.	Mullay. Land. A.	Mullay. Sist. R.	A.	P.	Yerraya. Land. A.	Yerraya. Sist. R.	A.	P.	Total. Land. A.	Total. Sist. R.	A.	P.
1st Class.	20	20			10	10			8	8			12	12			50	50		
2d do.	5	3	12		20	15			...	...			5	3	12		30	22	8	
3d do.	5	2	8		...	...			10	5			5	2	8		20	10		
	30	26	4		30	25			18	13			22	18	4		100	82	8	

As the sists will be fairly apportioned by the ryots themselves with reference to the soils, it is not necessary that each ryot should get, according to the general deduction, exactly a reduction of ⅛ of his present assessment, and a difference of 10 per cent. more or less is not of consequence.

The rent fixed on a Khandam according to the above method will be invariable, but when the occupants of the separate fields composing it, have any just cause for altering the assessment on their respective portions in consequence of changes to which holdings or properties are liable, they should obtain the permission of the Circar to do so.

3d mode or classification of lands.

71. It is a very difficult task to arrange the Tarums and attach to them suitable rates of rent without having an aggregate demand beforehand for the village or the Khandam. It is not necessary to repeat here again that the Tarummar sists fixed in some Districts have been found not to work properly.

The villagers may know to some extent the degrees of fertility of their lands from experience, but for others, it is difficult to form a correct judgment. The villagers even may fall into error, because an inferior soil when in the occupancy of a substantial cultivator may be more productive, from being well manured, than a good soil, while a good piece of land cultivated by an indigent ryot may give the yield only of an inferior soil. If produce is to be considered the principal elements, the quality of the soil must be left out. Sometimes streams of water suddenly wash over land and carry away the soil, to its impoverishment and occasionally good soils become socidoo, or impregnated with nitre. It is therefore manifest that from these causes, the natural condition of the land may be changed.

Difficulties in the way of fixing Tarmus.

A Khandam is either a large field, which forms a Khandam of itself or a number of small fields grouped together when it contains 2 or 3 kinds of soils, the extent of each can only be ascertained by measurement.

Such a measurement will give the extent of each tarum in the Khandam but not the extent in each ryot's holding, nor that in each of the

several fields included in the Khandam. If it is said that the productive power of the several tarums shall form the basis of assessment, and that the extent of each tarum shall be ascertained by actual measurement whether through the Curnums and Samutdars or otherwise, it must be remembered that the different tarums are scattered over the Khandam, and that being thus situated the measurement would be laborious and intricate causing a waste of time and would further be useless. The distribution of fields and holdings cannot be regulated by the tarums. Besides this, the boundaries of the fields within a Khandam as well as their occupants change.

If it is thought that, when there are two or three kinds of soils in the Khandam, they may be viewed in a general way in the mass and an average tarum formed from mere inspection, such an estimation appears to have its difficulties and does not commend itself.

The persons most competent to classify lands are the villagers, but if freedom is given to them to do so without a demand on the Khandam being fixed in the first place to guide their proceedings, they would from self interest include the 1st class land in the 2d tarum, the second in the third, the third in the fourth and so on. This work could not therefore be entrusted to them supposing the idea that the assessment shall be based on the tarums alone to be followed out.

The difficulties above mentioned may in some degree be met by associating such Public servants, as are able and trustworthy with the ryots of the village as well as those of neighbouring villages, and in this way the tarum details may be obtained.

If a detailed measurement of the component fields of a Khandam be completed in the manner stated in para. 59 before the tarums are fixed, it will be less difficult than if there were no such measurements to make a classification, because many small portions or numbers may be included in one class.

Black, light coloured and Sondoo. The different kinds of land in each district have been enumerated already. In Regada soils there are three subdivisions, viz. Nulla Regada, Pulluda Regada and Chaviti Regada. The tarums of Nulla Regada generally do not exceed 3 in number. Pulluda which is next in quality to Nulla Regada has also 3 tarums. Lastly, Chaviti Regada is inferior in quality to Pulluda and it also has 3 tarums. All these classes are not always formed in the same village. In some villages the Nulla Regada may be extensive; while in others, either Pulluda or Chaviti Regada may prevail. If 1st class Nulla Regada rate be 3 Rs. per acre, that of the 1st class Pulluda and Chaviti lands should be Rs. 2-8-0, and Rs. 1-8-0 respectively. There are similar differences in other descriptions both of wet and dry soils. If in a village there is 1st sort of land paying Rupees 4 per acre and there is another soil inferior to it paying Rupees 2 per acre, the latter should not be classed as the 2d sort. There are many similar points to be attended to. A set of rules for guidance in fixing the tarams should be prepared to prevent them from falling into errors and preparing accounts on a wrong principle; but these are not given in this place.

With reference to the qualities of lands as above mentioned Taramwar rates may be fixed for dry and wet lands in the Northern Circars according to the following scale.

Number.	Ganjam.						Vizagapatam.						Rajahmundry.						Masulipatam and Guntoor.					
	Dry rate per acre.			Wet rate per acre.			Dry rate per acre.			Wet rate per acre.			Dry rate. per acre.			Wet rate per acre.			Dry rate per acre.			Wet rate per acre.		
1	2			3			4			5			6			7			8			9		
	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
1	2	...	...	5	...	..	2	8	...	6	...	...	3	8	...	8	...	...	3	...	...	7	...	...
2	1	12	...	4	8	...	2	...	...	5	8	...	3	...	...	...	...	...	2	12	...	...	...	...
3	1	8	...	4	...	...	1	12	...	5	...	...	2	12	...	7	...	...	2	8	...	6	...	...
4	1	4	...	3	8	..	1	8	...	4	8	...	2	8	...	...	...	...	2	4	...	...	..	...
5	1	...	...	3	...	...	1	4	...	4	...	...	2	4	...	6	8	...	2	...	...	5	...	...
6	...	12	...	2	8	...	1	...	...	3	8	...	2	...	...	...	...	...	1	12	...	4	...	...
7	...	10	...	2	...	..	...	12	...	3	...	...	1	12	...	6	...	...	1	8	...	3	8	...
8	...	8	..	1	12	...	...	10	...	2	12	...	1	8	...	...	...	...	1	4	...	3	...	..
9	...	6	...	1	8	...	...	8	...	2	8	...	1	4	...	5	8	...	1	...	...	2	8	..
10	...	4	...	1	4	...	...	6	...	2	4	...	1	...	...	5	...	...	...	14	...	2	...	...
11	..	...	..	1	...	...	...	4	...	1	12	...	...	14	...	4	...	...	...	12	...	1	12	...
12													...	12	...	4	...	...	...	10	...			
13													...	10	...	3	8	...	...	...	...			
14													...	8	...	3	...	...	...	...	...			
15													...	6	...	2	12	...	...	...	...			

The above rates are to be levied whether a second crop is raised in the dry lands or sundry products are raised a 2d time in wet land as usual without the aid of annicut water. But if a 2d crop is raised in wet lands by the irrigation of annicut waters, Fasul Jasti or on additional rate of one half of the assessment on the 1st crop should be collected. It should be considered whether Fasul Jasti should be levied on sugarcane, which occupies the land all the year: it has not been the practice hitherto to do so, and it appears proper to forego it because in some localities the land is left fallow for the first year, and full sists is levied from the ryots for that period. The land moreover is from its quality included in the first rate.

72. In the above paragraphs the relative practicability of the 3 modes of framing the assessment, has been treated of. It will be perceived that the 1st mode according to which the Public officer is to fix a demand, for the whole village, is the easiest of the three, a Khandumwar assessment according to the 2d plan is less easy while the 3d plan, viz. Taramwar sists is difficult and intricate. It may be observed that the assessment according to the 2d plan can be speedily carried out.

73. It has not been the practice in the Circars for a ryot to manure all his dry land. Cropping annually the same land owing to an excessive assessment has by degrees impoverished it. Measures should be adopted to prevent this. For instance, a ryot occupies 50 acres with an assessment of Rupees 100, if one fifth of his land be assessed at one fourth or one sixth of the land be exempted from sist altogether he will be able to keep a portion fallow and feed his cultivating cattle thereon for a time. They will cultivate this land afterwards leaving another portion fallow. By this rotation, lands will preserve their powers and enrich their cultivators. On this plan being carried into effect, the ryots will undoubtedly take up more land than their present holdings. This rule is applicable only to certain descriptions of dry, but not to all nor to wet lands.

74. There is much dry land fit for wet crops under the Godavery and Krishna annicuts, and some may be of opinion that that the Teerwa jasti rate should therefore be uniform, because all dry lands converted into wet have equal use of the water. Though water flows equally to all lands, it cannot be assumed that the produce of all will be to the

same extent. It will vary according to their respective capabilities. As wet lands yield on an average double the quantity of dry land, Teerwa jasti or the additional assessment for wet may be about equal in amount to the rate to be fixed for dry at the approaching revision of the assessment; but in addition to this the difference in the prices of wet and dry grains must be considered. Teerwa jasti in Rajahmundry may be fixed in the manner exhibited in the margin. Much of the dry land coming under the influence of the annicut being Regada which does not yield well during the first two years of its conversion to wet cultivation, it is fair to levy Teerwa jasti from the third year only according to the above rates when a second crop is raised with the annicut water half of the total amount of the Taram sist and Teerwa jasti* together should be levied for the additional water taken. The wet and dry respectively not being distinguished in the village accounts from the cultivation being wet one year and dry another, the wet sist for such dry lands as may be irrigated with annicut water may be fixed at once according to the scale above.

Dry rate.			Teerwa jasti equivalent to Teerwa.			On account of the high prices of wet Produce.			Total Teerwa Jasti.			Dry rate and Teerwa Jasti.		
1			2			3			4			5		
Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
3	8	...	3	8	...	1	...	...	4	8	...	8	...	...
3	...	...	3	...	...	1	...	...	4	...	...	7	...	...
2	12	...	2	12	...	1	...	...	3	12	...	6	8	...
2	8	...	2	8	...	1	...	...	3	8	...	6	...	...
2	4	...	2	4	...	1	...	...	3	4	...	5	8	..
2	...	...	2	...	...	1	...	...	3	...	...	5	...	...
1	12	...	1	12	...	1	...	...	2	12	...	4	8	...
1	8	...	1	8	...	1	...	...	2	8	...	4	...	...

Rates lower than these may be applied if necessary to very inferior lands as Rova and Para if they receive water from the Government works.

	Rs.	*A.*	*P.*
* *Taram sist,...... ......*	3	8	0
Teerwa jasti,......	4	8	0
Total...	8	0	0
Fusul jasti,.........	4	0	0
Total 2 Crops Assessment,...	12	0	0

No. 6 of appendix average per Khandam.	
Land acres,.........	55.
Sist, Rupees.........	140.

75. The village of Vomaravalli situated in the Ganjam district contains 25 Khandams with an area of acres 1347 both wet and dry, paying an assessment of Rupees 3,500. The lands of each Khandam are divided and enjoyed by several ryots, in each there are 3 Tarums. The 1st class wet in some is assessed at the rate of Rupees 5 per acre while the 1st class in others is rated at Rupees 2½. The latter however should not be considered as 1st Tarum land. In illustration a statement shewing the Khandams of the foregoing village is given in No. 6 of the appendix. A reference to it shews not only that Khandams already exist but an insight into the Tarums and assessment is afforded.

* * *

79. The following is an estimate of the probable reduction of the present assessment on its revision the ryots share being fixed at ⅔ and the Government tax at ⅓.

	Names of Zillahs.	Remainder after deducting remissions for waste out of the Attcoobady or gross demand.	Amount of reduction necessary to make the ryots share equal to two thirds of the gross produce. Estimate. Percentage	Estimate. Amount.	Permanent and temporary remissions hitherto given.	Remainder.	Assessment of waste paid by the ryots.	Profit to Government by the cultivation of the waste lands.
	1	2	3	4	5	6	7	8
		Rupees.	Rs.	Rupees.	Rupees.	Rupees.	Rupees.	Rupees.
1	Ganjam.	4,86,000	15	73,000	26,000	47,000	12,314	5,000
2	Vizagapatam. ...	3,04,000	25	76,000	55,000	21,000	5,632	5,000
3	Rajahmundry	14,24,800	*20	2,85,000	12,000	2,73,000	2,04,994	....
4	Masulipatam. ...	7,16,000	25	1,79,000	23,000	1,56,000	1,84,387	1,00,000
5	Guntoor....	12,68,000	25	3,17,000	83,000	2,34,000	2,72,133	2,50,000
	Total...	41,98,000	...	9,30,000	1,99,000	7,31,000	6,79,460	3,60,000

* In Rajahmundry at present the Dry land sist is excessively high and that on the Wet is light. When a proper rate is fixed on the Dry at the revision of Assessment the Wet sist may be increased. For these reasons an average reduction of 20 per cent. has been estimated. The increase derivable from the benefits of the Godavery and Krishna Annicuts is not included in the estimate, and will form a separate addition.

The reductions thus estimated at Rupees 9,30,000 being permitted, the present remissions permanent and temporary, which amount to nearly two lacks of Rupees will be discontinued in future. The amount properly remittable is thus reduced to Rupees 7,30,000, but it should be remembered that Rupees 6,80,000 are now levied on Bunjer.

The above Statement it will be perceived is confined to land paying full assessment exclusive of Cuttoobady or Mokhasa and Agraharums and enams, tax on fruit trees and palmyras, &c., and the Peshcush of Zemindary estates.

* * *

(A true Extract of the Sheristadar's Memo.)

(Signed) J. GOLDINGHAM,

Commissioner.

Extract from the Minutes of Consultation dated 12th November, 1856.
No. 1206.

1. In Extract Minutes Consultation dated 1st June 1855, No. 669, the Government after noticing the proposal submitted by Mr. Goldingham, the Commissioner in the Northern Circars, for the immediate introduction of Ryotwar field settlements in Rajahmundry and Masulipatam in lieu of the joint rents now prevailing in those Districts, expressed readiness to give full consideration to any facts and plan that he may bring forward, and to authorize the course advocated by him, if it could be shewn that a survey was not really essential as a preliminary measure. The orders of Government had primary reference to Rajahmundry; but they were to be considered applicable to Masulipatam also, in which District the joint village rents are in extensive use. To enable the Government to form a determination, the Commissioner was requested to furnish definite and detailed information on the following points.

1st. What information existed as to the extent of fields, and their quality and productiveness; or the rate or amount of assessment fairly leviable upon them; and the degree of credit, of which such information was deserving.

2d. What agency was proposed to be employed for the purpose of determining the assessment on each field.

3d. The probable cost of the operation; and the probable time within which it would be completed.

4th. The financial effect of the change proposed, as to the immediate loss of revenue to be expected, and the period within which it might be expected to be recovered.

The Government were the more particular in requiring exact information, because the Commissioner stood alone in maintaining the existence of trustworthy data for an individual settlement by field assessments in opposition to several officers of ability and experience who had expressed opinions to the opposite effect.

2. In the paper recorded above, Mr. Goldingham replies to the observations of Government. In answer to the first question, he states the six following propositions.

1st. That it has been laid down as a rule long ago, that village accounts always exhibit sufficient data on which to found a ryotwar settlement.

2d. That two former Collectors of Rajahmundry, Messrs. Robertson and Kindersley, bear testimony to the sufficiency of the settlements so made in that District in 1824-25.

3d. That the Board of Revenue in their Proceedings of the 14th July 1845, expressed an opinion that the collective village rent should resolve itself into an individual settlement at an early period.

4th. That the main feature of the present collective village rent is in fact ryotwar, as the aggregate amount is proportioned among the ryots.

5th. That if the fields are registered and named and their area recorded, either on estimate or on some ancient measurement, with entries of past collections and maximum rent, the presiding revenue officer has ample means for making a settlement on sound principles.

6th. That the last position is fully borne out by the views of an experienced public servant, viz. the Commissioner's Sheristadar; extracts from whose memo. on the revenue history and condition of the Northern Circars, are submitted with Mr. Goldingham's letter.

3. The Governor in Council must observe that such general observations are very far from satisfying the call for specific information contained in the orders of Government. Mr. Goldingham's own reply is summed up in paras. 3 to 7 of his letter, paras. 8 to 33 being taken up with an abstract of his Sheristadar's memo.; but in either case, it can hardly be said that any thing in the shape of evidence is advanced

to shew that the existing available materials are sufficient in extent and in accuracy, to form the basis of a field settlement. Mr. Goldingham however adheres to his former opinion ; and he proceeds in the remaining paras., of his letter to explain his views as to the measures to be taken for carrying them into effect. On the other hand, the opinions of Mr. Purvis the Collector, and Mr. Taylor the Sub-Collector of Rajahmundry whose letters form enclosures to Mr. Goldingham's letter, are directly opposed to his own. Both these Gentlemen declare most strongly, that the existing village accounts are utterly untrustworthy and unfit to be relied on, as the foundation of a revenue system. They both also consider a survey essential as a preliminary ; although indeed Mr. Taylor states the opinion,* and Mr. Purvis follows him, that a survey sufficiently accurate for practical Revenue purposes might be made by the agency existing in the District.

* *Para.* 10 *of Taylor's letter*, 9*th July* 1855. *Para.* 12 *of Mr. Purvis' letter*, 5*th Nov.* 1855.

4. With regard to the first of the six propositions above enumerated, it is to be observed, that the so called "rule" as to the sufficiency of village accounts for a ryotwar settlement, appears to be a mere expression of opinion occuring in Extract Minutes of Consultation dated 22d June 1825, founded on a Minute† recorded by Sir Thomas Munro at the time when it was desired to introduce ryotwar settlements generally, to the effect that even when no survey or other accurate data exist, the village accounts are sufficiently in detail in most parts of India for making a ryotwar settlement, when there are no other circumstances to prevent it. The settlement made by Sir Thomas Munro on assuming charge of the Ceded Districts in 1801, was of this description. But a reference to his own account of the process, shews that it differed little from the joint rent settlement of Rajahmundry. Of the three modes of proceeding described in his instructions to his subordinates, the first two consisted in fixing the collective demand of a whole talook, or of a whole village, leaving the details to be settled by the people among themselves. The third or ryotwar settlement would, he added, be the best, if the village accounts could

†10*th May* 1822 *in Vol. III. of the Selections from the papers on record at the East India House, page* 552.

be depended upon. "But, he proceeds, as the Curnums' accounts are always false, to begin with fixing the rents of the cultivators would be the most tedious and most unequal of all settlements;" and again, "*when a country has been surveyed however*, the individual supersedes all other settlements." From these passages, it is clear that the so-called rule quoted did not refer to a settlement based on a field assessment.

5. Neither does the opionion of former Collectors, which Mr. Goldingham relies for his second argument, appear to be more favorable. Mr. Kindersley describes the Veesabuddi assessment under which the district of Rajahmundry is supposed to have enjoyed such prosperity as being "a division of the collective village demand upon the *entire lands* of each ryot," in which the proportions assignable to the parts or fields was not ascertained. He therefore determined to form a field assessment; and for this purpose having fixed a collective demand for the whole village, the ryots were left to divide the amount among themselves, not as before on their farms or holdings, but on each field. The result was not fortunate. In the following year, his successor (Mr. Hanbury) found this field assessment to have been made in so "loose and hasty a manner," as to be useless "especially in unmeasured lands like these." He therefore reverted to the former system; and the Board of Revenue approved of the proceeding, adding "that although a field assessment would be a great improvement on the Veesabuddi system, it could not be correctly made without a regular survey and classification, which it was not then expedient to undertake." Mr. Robertson who was in charge of the District for a few months only, does not appear to have left any notice of the subject on record.

6. The next three arguments employed by Mr. Goldingham are little more than expressions of opinion. As regards the third statement, the joint rent settlements were never intended to be permanent, but only to last until more certain data could be obtained. With reference to the fifth, as to the present existence of sufficient means to make a settlement, it may be conceded that if such information of a trustworthy character was indeed forthcoming no doubt the Revenue officer would have ample means for concluding a settlement on "sound principles"; but this is precisely the point at issue. Nor do the extracts from the paper by the Sheristadar appear to be more pertinent to the matter under discussion. They refer rather to the conduct of a

general survey of the Circars, and might properly have come under consideration in dicsussing the details of such a measure. It may suffice to observe, that the Sheristadar takes a somewhat novel view of the subject. He recommends that the village area should be ascertained not according to the ordinary mode by a field survey, but by the measurement of certain large divisions called Khandams. The fields contained in these are to be plotted subsequently by "less skilful hands," referring apparently to the village Curnums. This plan meets with the entire approval of Mr. Goldingham; but its advantages are not apparent to the Government.

Paras 16 and 17 of Mr. Goldingham's letter.

7. In the most approved surveys, the village boundary is laid down by one process, and the area of the fields in by another; both however under the same superintendence. The Commissioner's plan, which does not it may be presumed overlook the village limits, requires an additional operation for determining the area of the Khandams. Here the scientific survey stops, and the field survey becomes a third operation conducted by an inferior class of servants. The allotments or Khandams here referred to are, the Government apprehend, the old divisions, or shares formed for a very different state of things from what now exists, resembling the coparcenery tenure of the North West Provinces. But this ancient constitution of the village has long ceased to exist. The village community is no longer an exclusive proprietary body. Any stranger by taking unoccupied land may become a member of it. The recognition of the original village shares now, is therefore useless, and a survey limited to a measurement of them can serve no good purpose. Correct field maps could not be prepared by the less skilful agency to be employed in the final process, and the Khandam maps advocated* by Mr. Goldingham would serve no practical end. It is further proposed † that the demand shall be fixed on the Khandams, with special reference to the ancient assessment; but this done, the distribution of the Khandam beriz on fields is to be made by the ryots among themselves, as it is argued that fields cannot ‡ be classed according to their quality, and the size of fields does not always continue the same.

* *Para 69 of his letter.*

† *Paras. 21 to 30 and 36.*

‡ *Para. 23 of Mr. Goldinghams' letter, and 70 of the Sheristadar's memo.*

8. It is unnecessary to pursue further the views propounded in the Sheristadar's memo. Mr. Goldingham refers to them in the first instance, to prove that a received measurement and assessment of the land were formerly made in Rajahmundry. This may be very true; but it is not shewn that any trustworthy record of those institutions remains; neither is it explained what good the Government could expect, from attempting to revive an antiquated and now forgotten system. In a subsequent part of his letter Mr. Goldingham recurs to the subject, in reference to a further proposal submitted by him for "the revision of the village registers" which will be noticed in a subsequent para. He concludes this portion of his subject by taking for granted that he has successfully established his position, "that Collectors in the Northern Circars possess the means of enforcing sound principles of assessment and settlement, without what is termed a professional survey;" *Para.* 35 a position however, which under the foregoing analysis of his arguments the Government must decline to concede.

9. The second point on which Mr. Goldingham was requested to report, was the agency which he proposed to employ for determining the field assessments. This agency he now states to consist simply of the village Curnums. These officers, under the general superintendence of the talook establishments, are to prepare registers of the land according to the ancient divisions and assessment, shewing the modern subdivisions of the Khandams into fields with the area and demand on each. *Para.* 61. These registers are then to be corrected as to area by converting the pooties into acres, which the Curnums are to be required to effect by re-measurement within *Para.* 60. six months; and next as to assessment, by furnishing the ryots with a scale of fifteen rates prepared by the Commissioner's Sheristadar, as those proper for the Rajahmundry District, according to which scale the ryots are to correct the rates entered in the Curnum's account. The register is then to be considered *Para.* 27. final. These arrangements are to be effected without extra charge.

10. But it would seem that the Commissioner after *Para* 40. all does not place much confidence in his scheme, for he goes on to declare that no time should be lost in reforming the confused state of the assessment in Rajahmundry and Masulipatam, by a further process which he explains under the name of a "Reform of the village registers."

11. For the accomplishment of this object, Mr. Goldingham recommends that six parties of surveyors should be employed, costing with the native Assistant and establishment for the classification and accounts, 313 Rupees per mensem as shewn below.

Para. 64.

		Rs.		
1	Surveyor,	15		
1	Asst. do	7		
	Chain and offset men..	11		
		33	X 6 =	198
1	Native Superintendent			50
	Goomastahs for classification and accounts			40
	Stationary, including paper for maps			25
				Rs. 313

Paras. 44 *and* 64. These parties he proposes to place under the superintendence of Mr. Taylor, the Sub-Collector, to execute a more careful measurement than that made by the Curnums. Their operations are to be based as already recommended, for the ryotwar settlement without survey, on the ancient divisions and assessment, viz. on the Khandams. The work is to proceed gradually; because it is considered that a number of Surveyors, strangers to the District, dispersed over it would create confusion; that there would be no willing and intelligent co-operation on the part of the ryots, but that on the contrary passive resistance might be expected from the people; and that the officers under these hindrances, would fail to learn the real state of the villages or become acquainted with the tenures of land.

Para. 65. As the charge would not be large, the cost it is thought should be defrayed in whole, or in part, by the villagers.

Lastly, to supply Mr. Taylor's place while engaged in these duties, Mr. Goldingham advises the abolition of the Subordinate Court of Rajahmundry as unnecessary, and recommends in its stead the appointment of an additional Sub-Collector and Joint Magistrate.

12. The plan thus sketched by the Commissioner, appears to be virtually an imperfect survey; which taken in juxta position

Para. 72. with a professional survey, he believes to be the one best suited to the present state of the District of Rajahmundry, in which the proposed reform is to be first carried out. The Government do not consider it necessary to discuss at length the merits of this plan. It is not pretended that such a survey as that proposed by Mr. Goldingham, would be all that a survey ought to be; and it could only advance at a very slow rate: the feeling too entertained against a professional survey by a special Department, does not seem to be well founded; and there seems no reason why the settlement to follow such a survey should not be as popular, and be as much couducted in direct and free communication with the ryots, as if it were made by the Collector. The Government have already* recorded their deliberate sentiments on the proper mode of prosecuting a general revenue survey; and they must wholly condemn a proposition to attempt to graft a new survey on a rude and primitive system, which has long been obsolete and the traces of which are scarcely to be recognized. It may be added, that in the general scheme contemplated by Government, Rajahmundry and Masulipatam are two of the Districts specially named,† as the earliest to be undertaken in such regular survey and settlement.

* *Ex. Mins. Cons.* 14*th August* 1855, *No.* 951.

† *Vide para.* 44. *of Ex. M. C.* 14*th August* 1855.

13. The third point of enquiry was the probable cost of the operation recommended by the Commissioner, and the time within which it would be completed. As to the cost, it has been already noticed that according to Mr. Goldingham's plan, the charge of the imperfect survey proposed by him is to be levied wholly or in part on the villagers; but as to the period to be taken up by the operations, there is no other information than that the progress of the survey should be gradual. Mr. Taylor however furnishes a clue on this part of the subject. He states* that a surveyor and his party assisted by the village servants could not survey more than fifty acres a day, or twenty square miles a year; this calculation is based on the supposition of 250 working days, leaving out Sundays and occasional holidays and bad weather. Six parties being proposed, the work of one year would amount to

* *Para.* 12 *of Mr. Taylor's letter* 9*th July* 1855.

120 square miles; and as the District of Rajahmundry contains 5,500 square miles, the work would not be completed in less than forty six years from its commencement.

14. The last point of enquiry was the financial effect of the changes proposed. The expected results of Mr. Goldingham's scheme as regards the whole of the Northern Circars are stated to be an immediate sacrifice of revenue to the extent of 9,30,000 Rupees; against which is to be set off a sum of 1,99,000 Rupees to be gained by the discontinuance of remissions, and further eventual gain of Rupees 3,60,000 by extension of cultivation; leaving a net deficit of 3,71,000 Rupees a year. These figures are taken from the Sheristadar's memo., and are mere estimates which do not admit of verification. But assuming them to be correct, the plan proposed would result in a permanent loss of revenue of 3,71,000 Rupees, after allowing for probable increase of cultivation and for all the gain to the ryot from the Annicut works. If this were adopted and the result were as anticipated, the deficit would have to be made up by other Districts; and much more than made up, because the expenditure in various particulars will hereafter be larger than heretofore; and yet it cannot be said that the Northern Circars are now more heavily taxed than other parts. Indeed, the very reverse is believed to be the fact.

15. In the Extract Minutes of Consultation to which Mr. Goldingham replies, Government stated their expectation to receive the opinion of the Collector, together with that of the Commissioner on any changes that might be proposed; and in pursuance of this request, Mr. Goldingham submits the views of the Collector and the Sub Collector of Rajahmundry, on the practicability and expediency of adopting his plan in supersession of the present settlement. The opinion of both these officers is adverse to the change. Mr. Purvis† thinks that most of the defects in the join rent settlements pointed out by the former Commissioner, have been rectified. He is satisfied that any attempt to introduce a field assessment at present would lead to no satisfactory result, because the recorded entry of the area and extent of fields in the Curnums' accounts are notoriously inaccurate. "No one indeed," he says, "pretends that they are

† *Paras,* 3 *to* 9 *of Mr. Purvis' letter,* 5*th Nov.* 1855.

Para. 10.

Para. 15.

correct ;" and it is added, that the Sub Collector's survey operations have proved it. As little, is he disposed to attach credit to the traditions of the ancient assessment, or to the recorded statements of past collections. The latter exhibit only the aggregate payments of individuals, not the quota assessed on fields. He points out that it would be impossible for the present Revenue officers, without additional European assistance, to superintend efficiently the operations specified by the Commissioner; and he is of opinion that the Curnums however intelligent and well trained, could not be trusted to fill in the particulars of the survey of their villages.

Paras. 13 *and* 14.

Para. 3 *of Mr. Taylor's letter* 9*th July* 1855.

16. The Sub Collector also thinks that no real advantage would be gained by a change of revenue system, until a proper register of the fields shall have been obtained by an accurate measurement of the land. He concurs in the propriety of maintaining for the present the existing joint rent settlements, as recently modified and improved. He admits that the Curnums may shew every detail required; but is of opinion that their accounts are unworthy of credit, and would need correction by careful examination and scrutiny on the spot. He is opposed to a gradual survey; for he thinks that a survey made at once will save both time and money. It is thus seen that both the local officers consulted, deprecate a change in the present system unless it be founded on a scientific survey.

Paras. 4, 5, *and* 6.

Paras. 7 *and* 10.

17. The Government must remark that the introduction of a ryotwar settlement into Rajahmundry is no new proposition, its feasibility is not considered for the first time. It was only after the concurrent testimony of the local officers had shewn an individual settlement to be impracticable, with the present defective village accounts, that Sir Henry Montgomery the Commissioner in 1843 proposed, and the Board of Revenue and the Government approved, a resort to joint village rents as a temporary expedient; and the importance of rendering those rents subservient to the collection of data, preparatory to the survey and revision of assessment, was urged upon the Collector from the very first. The plan was not chosen for its inherent merits; but because after care-

ful consideration it was deemed the best suited to the circumstances of the District.

18. In paras. 55 to 58 of his letter, Mr. Goldingham cites two examples, to prove how ill the joint rent system works; but in neither case are the selections fair. The first is that of a village settled on the principle of competition among the ryots; a principle which had been altogether condemned, and was already abolished. The other relates to an arrangement made by the Collector in the settlement of fusly 1265, for the correction of certain inequalities which had been the subject of frequent complaint in Mundapettah, a large and flourishing village paying from nine to ten thousand rupees a year. Mr. Purvis effected a conciliatory settlement, by reducing the puttahs of some ryots and increasing those of others who had benefited to a greater extent by the annicut water; the whole of the changes being within 335 Rupees. The Commissioner objects to this, on the ground that by the established rule, the demand was not liable to addition before the following year. The objections of the ryots however were founded on the first unequal sub-division of the joint rent; and were valid whether they received additional water, or not. It further appears that although the whole area of the village, which is under the Tooliabagah channel, may not have received water before Fusly 1263, it had nevertheless benefited very considerably; the revenue having risen remarkably since that channel was opened. The figures in the margin shew that all the ryots could not have participated equally in the advantages derived from the channel, and it appears to Government that the trifling alterations effected by the Collector were just and reasonable, and that he acted properly in making them.

	Rs.	*A.*	*P.*
Average collections from Fusly 1250 *to* 1855.......	6,969	14	0
Average collections from Fusly 1260 *to* 1265 *omitting Fusly* 1262 *of which statement is not at hand*...	9,806	1	0

19. One conclusion is evident from the foregoing revision of Mr. Goldingham's proposal and of the sentiments of the local officers. The evils which are shewn on all hands to exist in the administration of the Northern Circars, are not to be cured by palliative measures; they require a radical remedy. That remedy is without question a survey con-

ducted on the principles already approved by Government. Until this is done, it will be impossible so to define individual rights as to enable the people to act independently, and to make full use of the impulse given to personal exertion by improved irrigation. The present time is peculiarly favorable for the prosecution of such an undertaking. The net work of channels which has completely altered the face of the country, is far advanced to completion, and a survey which if commenced earlier must have been fundamentally revised, will now take in all the latest changes. The assessment is about to be raised to pay for the water spread over the delta; but the Revenue officers are compelled by the present defective condition of the accounts, to apportion the additional tax on very uncertain data.

20. In now recording his dissent therefore from the views and propositions put forward by the Commissioner of the Northern Circars in the paper above recorded, and declining to take action upon them, the Honorable the Governor in Council will only add that by a recent despatch from the Government of India* he learns that the proposal of this Government for a General Survey and Settlement of the land of this Presidency has been strongly recommended to the Honorable Court of Directors, and he entertains no doubt that sanction will soon be obtained for the early commencement of operations. It may be asserted without fear of contradiction that the accurate assessment of newly irrigated lands, and the discovery of unauthorized alienations, will more than pay the whole of the expense required for the purpose.

* *Dated* 16*th October* 1856, *No.* 1306.

(Signed) T. PYCROFT,

Chief Secretary.

Letter from CECIL BEADON, Esq., Secretary to the Government of India; to J. D. BOURDILLON, Esq., Secretary to the Government of Fort Saint George; dated Fort William, the 16*th October* 1856, *No.* 1306.

SIR,

I have the honor by direction of the Right Honorable the Governor General in Council to acknowledge the receipt of your letter No. 1073, dated the 22d September 1855, forwarding an Extract from the

Minutes of Consultation of the Government of Madras dated the 14th August with annexed papers relative to a proposal for the gereral survey and settlement of the Madras Presidency.

2. To these able and very interesting papers, and to the important subject to which they relate, the attentive consideration of the Governor General in Council has been given : and by the Mail of the 19th May last, His Lordship in Council strongly recommended to the Honorable Court that the measures proposed by the Madras Government should be generally sanctioned and that authority should be given to carry them into effect.

3. In anticipation of the orders which may be expected from the Honorable Court, I am now directed to forward for the consideration of the Government of Madras a Minute* by the Honorable Mr. Grant, containing remarks on the several points raised in the resolution of the Madras Government of the 14th August 1855. The views expressed in this Minute will doubtless receive from the Right Honorable the Governor in Council the most careful attention.

4. With regard to the details of the proposed survey, a report has been called for from Major Thuillier the Deputy Surveyor General of Bengal whose great experience in survey operations of every kind, and thorough knowledge of the subject, will render his observations eminently useful to those who may be entrusted with the execution of this great work in the Madras Presidency. Five copies of the second edition of Thuillier and Smyth's work on surveying in India, giving minute and valuable details in every branch of the subject theoretical and practical, and as many copies of the directions for settlement officers in the North Western Provinces are herewith forwarded for information.

5. It has been rightly determined to put no limit on the size of ryots' holdings which are to be separately measured and assessed. But the professional survey of small fields is found so expensive as to be practically impossible. The Right Honorable the Governor in Council will gather from the works referred to in the preceding paragraph, how much success has attended the instruction and employment of native Ameens in surveying with the chain and prismatic compass in subordination to the scientific survey.

* Omited in print.

6. The Governor General in Council particularly desires to recommend to the consideration of the Government of Madras the possibility of combining with the Ryotwaree settlement such an arrangement as shall allow the ryots to make themselves responsible for the revenue of a village for a term of years, and having done so, to reclaim as much of the waste land of the village as they choose during that term. His Lordship in Council believes that such a system would be more continuously and permanently efficacious in bringing waste lands under cultivation, than the adoption of the lowest possible rate payable on each acre of waste land as soon as reclaimed; and he is not persuaded that there is any insuperable difficulty in applying a system of this kind to Madras, or that it is essential to a Roytwaree system that all waste land as soon as it has been brought into cultivation should become liable to its full rate of tax modified only by a temporary exemption to repay the immediate cost of reclaiming it.

7. Considering the liberal spirit and earnestness with which the Government of Madras have applied themselves to the reform of the Revenue system, the reduction of assessment to which they have already given effect, and the results which have followed this reduction, the Governer General in Council is disposed to leave to their discretion, subject to the orders of the Honorable Court, the final disposal of the various questions discussed in connection with the present project. The foregoing observations, therefore, and those contained in the Honorable Mr. Grant's Minute are communicated to the Government of Madras, more with the view of promoting discussion and bringing to bear the experience of the revenue system of other parts of India, than with any intention of controlling the judgment to which the Right Honorable the Governor in Council may ultimately arrive.

8. In conclusion, I am directed to acknowledge the receipt of your letter No. 890, dated the 22d August last, upon which no orders are at present necessary.

E. M. C., dated 2d December 1856, *No.* 1275.

Ordered that the foregoing letter be recorded.

(Signed) T. PYCROFT,

Chief Secretary.

Revenue Department.

No. 17 of 1856.

OUR GOVERNOR IN COUNCIL AT FORT ST. GEORGE.

1. With your letter dated the 11th October (No. 44) 1855, you have submitted to us a Minute of Consultation dated the 14th August 1855, showing the final result of the consideration which has been given during the last ten years, to the question of a general survey and revision of assessment in the Districts subordinate to your Presidency.

2. You on the same date referred the whole matter for the orders of the Government of India. The vast importance of the subject and the necessity for dealing with it only with the fullest information, and after the most mature consideration, compelled us to await the communication of the views of that Government before issuing the instructions which you solicit.

3. The Minutes of the several Members of the Supreme Council have been forwarded to us, with a letter dated the 15th May last (No. 14) in which they give their "strong and unanimous recommenda-"tion that the measures proposed by the Madras Government should be "generally sanctioned, and that authority should be given to carry "them into effect."

4. The urgent necessity of a survey, with a view to the re-assessement of the Land Revenue in the greater portion of the Districts under your Presidency is, we consider, established beyond the possibility of doubt. We now proceed to review the several recommendations in the order in which we find them stated in your Minute of Consultation of the 14th August 1855.

Paras. 6 *and* 7. 5. We approve entirely of your proposal that the opportunity of the survey should be embraced for the purpose of instituting an investigation into the tenures on which land is now held rent-free. "It is notorious," you observe, "that in every District enams to a large amount are "held without any valid title whatever;" and although we can scarcely join in your anticipation that an investigation of titles if "under-"taken in a fair spirit, and with proper consideration for the presump-"tive interest which has grown out of a permissive enjoyment of above "half a century, will not be objected to," yet we are not on that ac-"count disposed to withhold our assent to a measure which is called

for by a due regard to the interests and claims of the tax paying portion of the agricultural community, and of the general mass of our subjects.

6. With respect to the mode of dealing with persons holding enam lands on titles found to be invalid, we agree with you that "after the long possession which has been "tacitly permitted, it would be only fair to deal liberally "with these cases, and to forbear to resume immediately, the proceed-"ings should rather be of the nature of those at Bombay under Act XI. "of 1852. Thus" you observe "the *immediate* recovery of revenue from this source would not be great, but ultimately it would be very considerable."

Para. 33.

7. We approve your decision that, for the purpose of obtaining greater accuracy, the Revenue survey should be connected by minor triangulations with the great Trigonometrical survey, a point to which we referred in para. 7 of our Despatch of the 18th July (No. II) 1855.

Para. 8.

8. We have already expressed our approval of the proposed manner of mapping very small fields in paras. 4 and 5 of the above quoted Despatch. We shall hereafter have occasion to recur to the point of the size of the fields when discussing the question of the expediency of discouraging small holdings, and the consequent increase of pauper ryots. We shall only remark in this place as we have alredy stated in para 6 of the Despatch before referred to, that we believe you are under a misapprehension in supposing that by the Bombay system, any limitation was placed on the size of fields actually occupied, or any interference practical with existing rights. Neither is it, we believe, a correct statement of the Bombay rule that "if a field were held in partnership, and one of the "co-partners died or gave up his part, the other co-partner must take "it, or abandon his part also, unless he could find some one to take the vacant share." By the Bombay practice several small fields held on the same tenure by different occupants, are clubbed together to form a larger field, bearing a separate number, and approaching in size as nearly as can conveniently be accomplished to the minimum size permitted for unoccupied land. These small fields continue to be held by their occupants, who, although designated sharers, are not under any joint responsibility, nor are their previous rights in any way interfered with. No further sub-division is permitted; and in the event of one of the

Para 9.

small fields or shares becoming vacant by death, default, or otherwise, the ryots holding the other shares or portions constituting the survey field, are required to arrange among themselves to take up the unoccupied portion, or to vacate their own shares so as to leave the whole field to be engaged for by one individual. The obvious and intentional tendency of this rule is to lead to the consolidation of the small holdings into larger ones; and although it may appear somewhat arbitrary, no difficulty has been found, so far as we are aware, in carrying it into practice under the reduced and equalized assessment.

Para. 10.

9. The extension of the survey to enam as well as Government lands is highly proper. The detailed survey of the Jungle and unreclaimed waste appears to be, at least for the present, unnecessary. The establishment and preservation of boundary marks, and the preparation of field maps, village maps, and talook maps, are essential to the permanency of the work.

Para. 11.

10. We agree with you that the best mode of settlement is that commonly termed ryotwar, although it may more correctly be designated Khetwar; that the assessment on each field should be defined and fixed, so that the cultivator should know precisely the amount of the Government demand on the land occupied by him. Whether the collection of the revenue from the individual ryots should be made directly by the stipendiary officers of Government, or by some intermediate Agency is a question which we propose to notice in a subsequent part of this Despatch. With a moderate assessment, it is to be hoped that remissions, except under rare and exceptional circumstances, will cease to be granted. We have observed with much satisfaction that, in the recently surveyed Districts of the Bombay Presidency remissions have already almost disappeared from the accounts.

Para. 12.

11. The discontinuance of the practice of granting remissions will render unnecessary all interference with, or enquiry into the agricultural operations of the ryot. He will be held liable for the assessment of all the land, whether actually cultivated, or not, for which he may have engaged, until he shall have formally relinquished it, and entire freedom will be given to him either to relinquish or to take up fresh land, as his inclination or means of cultivation may dictate to him.

Paras. 13 *and* 14. 12. In the classification of the soils, we agree with you in the opinion that exact accuracy is unattainable and that provided the assessment be sufficiently moderate, the want of it will not for a time be of much practical importance. We therefore concur with you in thinking that the classes should be few, and based on real and distinguishable differences of soil. The officers engaged in the duty of fixing the assessment should always bear in mind that, as you have expressed it "the right "of the Government is not a rent; which consists of all the surplus "produce, after paying the costs of cultivation and the profits of the "agricultural stocks; but a land revenue only, which ought, if possi- "ble, to be so lightly assessed as to leave a surplus or rent to the oc- "cupier, whether he in fact let the land to others, or retain it in his "own hands."

Para. 15. 13. The suggestion that the distinctive classification of lands according as they are or are not capable of irrigation from a Government source should be abolished, and that all land should be classified simply with reference to its soil, and its productiveness without irrigation, a water rate being charged when Government water is used or is permanently available, is one well worthy of mature consideration. This practice prevails in the North West Provinces, and although the universal practice under your Presidency is different the change might, you think, be made without inconvenience on the occasion of a survey if on the whole deemed expedient.

Para. 16. 14. The classification of the soils having been completed the next process to be undertaken is the valuation of the land. In the former operation, the inherent qualities of the land only are considered, while in the latter such accidental circumstances as the nearness of the village, facility of commutation, and whatever else may affect either the quantity or quality of the produce have to be taken into account. This may you consider, be most conveniently affected, as in Bombay, by placing the field or village, as the case may be, in a higher or lower class of assessment according to the aggregate of such circumstances:

Paras. 17 *to* 19. 15. The next and final process is the determination of the assessment. You are of opinion that, with certain exceptions, the proportion of the crop actually taken by Government at the present time, except when there

have been recent reductions, is not less than 50 per cent. on irrigated, and 35 per cent. on unirrigated land. Under the revised assessment, you propose that 30 per cent. of the gross produce should be taken, as the maximum of the Government demand under the most favorable circumstances, but subject to reduction in the event of the absence or lower degree of any of the accidental advantages referred to in the preceding para. These reductions would, you apprehend, bring down the share taken by Government to about 25 per cent., or one fourth of the gross produce.

16. We consider that this part of your scheme, is the one most open to objection, and moreover that it is inconsistent with the principle laid down in para. 13 of your Resolution that the right of Government is not even to the whole rent, but only to a share of the rent. In lands of a high degree of fertility, possessing every means of communication and in the neighbourhood of good markets, 30 per cent. of the gross produce may fall considerably within the limit of the rent or net produce; in lands less fertile, and less favorably situated, a much smaller share of the gross produce might considerably exceed it. The natural and inevitable consequence, as it appears to us, of apportioning the assessment to the gross produce, is to favor the most fertile lands, and to press with increasing severity on the poorer lands, in an inverse ratio to their fertility.

17. In a natural state of things when the demand for agricultural produce is such as to render it necessary to bring all the available land under the plough, the least fertile land in cultivation would be that the gross produce of which would merely furnish the wages of labor and the profits of the stock employed in cultivating it, leaving no surplus out of which any rent or assessment could be paid. If, as under our revenue system, an assessment however small, is imposed such land must of necessity, all other circumstances remaining the same, be abandoned, and cultivation will recede until it reaches the point at which the gross produce is just sufficient to provide for the payment of the assessment, in addition to the wages of labor and the profits of stock.

18. The fact that the holdings are generally of very small extent, that the labour is performed in most cases by the ryot and his family, and that the agricultural capital employed is of exceedingly small amount, does not, we apprehend, interfere with the operation of the principles to which we have adverted. The produce of the land must at least be sufficient to feed and clothe the laborer and his family, and to replace the cattle and agricultural implements as they become worn out; and

besides this, a surplus must remain for the payment of the assessment imposed by the State.

19. We are therefore of opinion that the assessment should be proportioned to the net and not to the gross produce. This course was followed in the North Western Provinces of Bengal when the proportion demanded by the Government as its land revenue was taken at two thirds of the net produce. You observe that, although this share of the net produce would bear various proportions to the gross produce, according to circumstances, on the whole, it may be assumed to be equal to about 30 per cent. on the gross produce. Admitting this assumption to be sufficiently correct for practical purposes, we must observe that the question is in no respect one of averages. It may be true that 30 per cent. of the gross produce of a whole district may be equivalent to two thirds of the net produce; but the object of your proposed operations is to apportion the assessment fairly on the individual fields composing the district according to their varying degrees of value, and this object will not be attained by making the gross and not the net produce of each field the basis of assessment.

Directions to Settlement Officers, N. W. P. para. 52.

20. It may be argued that the net produce cannot be ascertained, or even estimated, with any near approach to accuracy. No attempt to estimate the net produce has been made in the revised settlements of Bombay or of the North West Provinces, in the latter of which it is declared that the operation of determining the assessment is "not one of arithmetical calculation, but of "judgement and sound discretion." We are well satisfied that absolute accuracy cannot be attained; but in endeavouring to fix the assessment on the basis of the net produce, or rent, we apprehend that you would be pursuing a course founded on correct principles, although but imperfectly attainable in practice. For the attainment of this object, as of many others contemplated in the revised settlement; it is probable that much useful information may be gathered by consulting the most intelligent and influential inhabitants of the villages in course of assessment. The main point to be regarded is that the assessment should be fixed at a rate sufficiently

Directions to Settlement Officers, para. 51.

Directions to Settlement Officers N. W. P. paras. 53-54.

moderate to allow for errors of judgment on the part of the settling officer. If this be attended to, the effect of any irregularities which may occur, will only be to render the lower assessed fields more valuable than those on which a higher assessment is imposed; but, in all cases, the share of the net produce left to the cultivator after defraying the assessment, and the expenses of cultivation will still be sufficient to render his land a desirable property.

Paras. 20 *to* 23.

21. The proportion of the produce to be taken as revenue being determined, the next step, you observe, is to decide the principle on which to convert it into money. You propose that the assessment of each field should be fixed in terms of so much grain, and that the grain should be converted into money at the average price of the preceding seven or ten years (according to the period that it may be thought advisable to take) and that the prices so fixed should endure for a term of the same length, at the expiration of which they would again become liable to re-adjustment on the same principle.* You are also of opinion that the grain assessment should not be fixed in perpetuity but declared unalterable for a period of fifty years.

22. We entertain great doubts of the expediency of these proceedings. We think that the rates, as we propose them to be assessed should be sufficiently moderate to allow for all ordinary fluctuations in the prices of grain, and that all needlessly frequent alterations in the amount of the ryots' payments should be avoided. The grain assessment having been determined and converted into money at a fair and moderate rate, we should prefer that the assessment so fixed should be declared unalterable for a term of thirty years (as in Bombay and the North West Provinces), at the expiration of which period both the amount of the grain assessment and the rate of its conversion into money, would be subject to re-adjustment according to existing circumstances.

Paras. 24 *to* 27.

23. In these paras., you have discussed the means which it may be possible to adopt to diminish the evils arising from the existence of very small holdings and consequently of a class of ryots scarcely if at all, above the

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* N. B.—*It is also suggested that the mode practised in this country for the commutation of tithe into a rent charge might perhaps be beneficially adopted, viz., to take the conversion price of each year at the average price of the preceding seven years.*

grade of paupers. The economical disadvantages of a minute sub-division of holdings are very generally admitted, both under your Presidency and that of Bombay. The two main causes of minute holdings you state to be; first, the practice of equal partitions of property among heirs; and secondly, the facility with which men, without any capital or any interest in the soil have been allowed to obtain land.

24. From a statement appended to the Board's Report on the Land Revenue administration for 1853-54, it appears that, out of a total number of Puttahs (excluding Joint Puttahs) of 1,409,729 no less than 834,190 were for sums below 10 Rupees, and give an average assessment of 3½ Rupees for each holding.

25. You observe that "under the new settlement in Bombay "an attempt has been made to check the evil by positive "restrictions on the size of holdings, and similar measures have "been proposed" for your Presidency. We have already called your attention to the Bombay rules, and to the effect which, without interfering with existing interests, it is hoped they may exercise eventually in the size of holdings. The small fields which now constitute separate and distinct occupancies may ultimately become consolidated into one survey field, and no land now uncultivated will be allowed to be taken up in a smaller quantity than a survey field. No further sub-division will be permitted, and although under the law of equal partition the interest in the land may be divided among the members of the family of a deceased occupant, the integral field will be held liable for the revenue assessed on it, in the event of default on the part of any or all of the joint tenants.

26. Although the Bombay rules may not be applicable in all respects to the cirumstances of your Presidency, we conceive that it will not be impracticable to establish regulations which while differing in form, may still tend to the same end. It is easy to conceive that, under the Hindoo law of inheritance, holdings (we do not under this term refer to single fields, but to all the fields in the occupation of one individual) may be so split up into minute portions that the produce of each shall be barely sufficient to maintain the cultivator and his family leaving no surplus out of which to pay any assessment. We consider that the Government has a clear right to take measures to prevent the occurrence of a state of things which will ultimately dry up the

source from which the revenue on which it mainly depends is derived. In the exercise of this right, they may justly declare that the fields actually occupied and cultivated at the time of the survey falling within a certain defined limit, shall not be further sub-divided, but that, whatever division of interests may hereafter arise under the law of equal partition, the whole field will continue liable for the whole revenue fixed upon it, that persons desirous of engaging for fresh land will not be permitted to take it except in fields of a definite size, unless together with that of the fields which they may already occupy, the assessment of the whole holding shall not fall below any amount which you shall hereafter determine. You might also declare that the holder of any small portion of land falling into arrear (a circumstance which will probably occur not unfrequently when the grant of remissions except under a general calamity of season, ceases to form a part of the revenue system) shall not be allowed to have a fresh puttah, but that it shall be added to the holding of any person willing to engage for it, provided the whole holding does not fall below the prescribed size. We would also suggest that no ryot desirous of contracting his cultivation should be allowed to do so by giving up land which would reduce his holding below the prescribed limit.

27. We cannot doubt that rules framed in accordance with the principles indicated in the preceding para., would have the beneficial effect of preventing further sub-division of holdings and ultimately of getting rid of a large proportion of the very small ones which now exist, and further, that they might be carried into effect without any objectionable interference with private rights.

28. In para. 27 you have referred to the rights of Meerassidars over the waste lands of their villages, and you observe that "under moderate assessment" land "will become valuable, the rightful holders "will occupy it themselves sub-letting it, or part of it, and will no longer "quietly submit to its being given away to those who have no rightful interest in it." The question involved in this para. is one of very considerable importance, and it would appear that you now propose to deal with it in a manner at variance with the practice which has hitherto prevailed. We desire that, in the disposal of waste land you will be guided by the principles laid down in para. 55 of our Despatch of the 28th July (No. 8) 1841, and paras. 31 and 32 of Despatch dated 3d July (No. 17)

Circular Orders of the Board of Revenue para. 321.

1844, and which are more fully enunciated in your Minutes of Consultation of the 1st March and 24th July 1849.

29. We see no reason to change the opinions respecting the rights of Meerassidars which we entertained when those paras. were written. Wherever, as in Tanjore any remains of Meerassy right have survived to the present time, and have an actual existence, we do not desire that it should be interfered with; but where, as in the greater portion of your Presidency it has fallen into desuetude, and has only been known in name ever since we have obtained possession of the country, we think that it would be unwise and inexpedient to make any attempt for its revival.

30. When applications for waste land are made by strangers, they should be communicated to the resident cultivators of the village, whether claiming to be Meerassidars or not, and the option should be given to them of engaging for it, finding security for the payment of the assessment. Should they, or any of them think fit to do so, they would of course be at liberty either to cultivate the land themselves or to sublet it, but the payment should be strictly enforced, in order, on the one hand to prevent transactions in the nature of land jobbing, and, on the other, to deter the villagers from engaging for land merely for the purpose of excluding others who might be desirous of holding it direct from Government, but who objected to take it as their sub-tenant. In cases where the resident ryots should refuse to engage for the waste lands of their village, Government may exercise the right of granting them to the persons applying, who would then hold the same position and possess the same rights in all respects as the other ryots of the village.

Minutes Consultation 24th July 1849.

31. In these paras. you refer to the practice of yearly holdings, and you state that "it seems desirable to adopt measures to introduce a more "permanent occupancy." "Under the present system," you observe, "a ryot is held to be entitled to hold his land so long as he pays "the demand on it. The Government cannot oust him to give the "land to another; but he is free to throw up the lands whenever he "pleases practically, under this system many fields are held permanent-"ly, although the ostensible title is only the annual puttah."

Paras. 28 *and* 29.

32. The means by which you propose to give this greater permanency appear to be first, by converting the annual puttah into a perpetual one, or, at least for so long as the ryot shall not desire to contract, or to increase his holding; and secondly, by allowing ryots occupying holdings "of some considerable size" to compound for a fixed annual payment either for a term of years, or otherwise making certain allowances for waste, for fallow, for bad seasons, &c.

33. The objection to the latter of these plans appears to be that, although ryots would probably be willing to engage for their holdings for a sum somewhat below the aggregate amount of the assessment on the fields composing it, and would continue to pay it so long as the seasons were favourable, yet, in a year of failure, when scanty crops might be combined with low prices there would be no means of keeping them to their engagement. The contract in short, would be altogether and solely for the advantage of the ryot, and, under a moderate assessment, such an arrangement seems unnecessary either to induce extended cultivation, or to secure permanency of occupancy.

34. The first plan however appears highly desirable, and we observe with satisfaction that it has already been partially brought into operation. In their Report on the Revenue administration for 1853-54, the Board of Revenue say that they propose "establishing the rule that each ryot is answerable for his holding of the preceding year, unless within a fixed time he presents a writing detailing any fields which he wishes to resign, or any new land which he wishes to occupy. All these representations," they state, "are to be promptly settled, and on their completion the cultivation returns of the year showing the land under occupancy will be drawn out. The Board have already sanctioned this change of system in Nellore and South Arcot, and now that the assessment is in process of being placed on a modified and sounder basis, they hope that the Ryotwary system will gradually receive its intended development and display a series of estates held by substantial proprietors with little annual change." Under this arrangement, the interference of the native revenue officers will be reduced to the lowest possible amount, and in fact no interference will be called for except at the cultivator's own request.

Letter dated 4th July 1855, *para.* 21.

Para. 30.

35. The extent to which it is proposed in this para. that the revenue survey and assessment should be carried, seems to be judicious. It will include all land usually cultivated, and all that has been cultivated within memory, or according to the village accounts, as well as such as may seem likely to be brought under the plough under the operation of an improved revenue system. Jungle and utterly unreclaimed waste will not be surveyed in detail, the total area only being determined.

Paras. 31 *to* 35.

36. These paras. are devoted to the consideration of the probable effects of the proposed measures on the revenue of your Presidency. You are of opinion that they will be followed gradually but surely, by a great extension of cultivation, and you anticipate with confidence that the result "instead of a falling off, will be an accession to the revenue, while, as "respects the payers and the public, the gain will be enormous, the "revenue will be derived from resources double or treble those upon "which it is levied now, and will be paid with corresponding ease, and "absence of privation."

Madras Selections, No. 22, *papers relating to the revision of assessment in South Arcot.*

Note ad finem.

37. We are disposed to concur in these expectations, and the probability of their realization is borne out by the actual results of the revisions of assessment under the Presidency of Bombay, as well as by the effects of the introduction of reduced rates into the District of South Arcot.

38. It must however be borne in mind that the large augmentation of agricultural produce, which may be expected to ensue on the reduction of the assessment, will, if confined to grain for local consumption and especially if ready means for transporting it to distant markets are not simultaneously provided, probably lead to a considerable decrease in the price, and that the ability of the ryot to pay the lower assessment may be in reality no greater than that which he now possesses under a higher one. It is therefore of the utmost importance that encouragement should be given to the production of sugar, cotton, and other articles suited for exportation; and that, as we have already remarked in our despatch of the 8th November (No. 23) 1854, when referring to the

expected increase of produce consequent on the construction of extensive works of irrigation, ready means of intercommunication between the several districts should be afforded. Although not specifically stated in the resolution which we have been reviewing, we presume that provision will be made in the new arrangement for the formation of District Road Funds, on a principle similar to that established in South Arcot, which was approved in para. 20 of our despatch dated 18th July (11) 1855.

Paras. 36 *to* 44.

39. The agency proper for effecting the survey and assessment and the cost of both operations, have next to be considered.

40. You propose that the survey should be conducted under the superintendence of a Surveyor General, who should be an officer of scientific acquirements, and who should receive a salary of Rupees 1,000 per mensem, in addition to the ordinary pay and allowances of his rank. Under this officer you would place at least four Deputy Surveyors General, with staff pay at the rate of Rupees 650 per mensem, each in charge of a separate geographical division of the operations. The total cost of the Survey, assuming the area to be subjected to it, at thirty eight million acres, or sixty thousand square miles, you estimate at Rupees 38,40,000, and the time that it would occupy at twenty two years.

41. You are of opinion that the assessment and settlement, including the classification and valuation of the land should be entrusted to a different agency. You accordingly propose that a Revenue Officer of experience should be constituted Superintendent of Settlement, with a salary (to avoid frequent changes of incumbency) not less than that of a Member of the Board of Revenue, with Deputies under him at Rupees 1,000 per mensem, one of whom it would probably be found expedient to have following each Deputy Surveyor General. Estimating the extent of land to be brought under settlement as thirty eight million acres, and the cost at ten rupees per hundred acres, the total amount will be Rupees 38,00,000, which added to the cost of the Survey will give an aggregate sum of Rupees 76,40,000.

Paras. 44 *and* 45.

42. You observe that the amount is large, but that as it will be spread pretty equally over a period of fifteen or twenty years, it will amount to no more than a charge of from one to one and a half per cent. on the annual revenue. The information which you have requested from the

Government of India, as to the salaries and establishments of the Settlement Officers in the North West Provinces, and the nature of their duties, will, when received, probably lead you to modify in some respects the scheme of establishments which you have suggested, when this shall have been finally settled you propose to submit detailed statements for the sanction of the Government of India. We will here remind you that much information is possessed by the Bombay Government regarding Establishments, both of Survey and Assessment, and amongst other competent authorities, we refer you especially to the Reports of Major Wingate, and Mr. Goldsmid on this subject.

43. We fully concur in your opinion that the cost about to be incurred is not more than commensurate with the importance of the objects sought to be attained by it, and we therefore give our sanction to the expenditure required. We would only remind you that the work should be pushed on as fast as efficient Establishments can be organized, not only that the people and the Government may the sooner benefit by the projected measures executed with caution and judgment, but also from motives of economy, as it is obvious that the expense of superintendence need not be increased in a ratio proportionate to the increase of the work whether of survey or assessment which must be performed in the field.

44. In his Minute dated the 13th March 1856, Mr. J. P. Grant has pointed out that from the circumstance of the settlement being ryotwar, it does not necessarily follow that each individual ryot should pay his dues direct into the public treasury. In our Despatch dated the 31st January (No. 1) 1849, we suggested the expediency of your requesting information from the Government of Bengal, as to the mode in which the settlement of Cuttack had been conducted with the view of ascertaining whether any of the principles there adopted would be made applicable to the Northern Circars. This system was examined by Mr. Walter Elliot, who appears to have arrived at the conclusion that a system similar at least in some respects to that of Cuttack might be introduced with advantage into those districts. Mr. J. P. Grant also expresses a similar opinion, observing that "nothing could have worked better than the last settlement of Cuttack," we do not wish to issue any positive instructions on this

Minute 8*th June* 1854.

Minute 13*th March* 1856, *para.* 9.

point; but we think that the recommendation of Mr. Elliot together with some other suggestions offered by Mr. Grant in his Minute before referred to, should receive your careful and deliberate consideration.

45. In conclusion, we have to express our entire satisfaction at the liberal and enlightened spirit in which this important subject has been discussed, and at the lucid and able manner in which your conclusions and recommendations have been placed before us in your Minutes of Consultation of the 14th August 1855. As you will now be in possession of our general sanction to the expenditure involved in the execution of this great measure, and of our view of the principles on which it should be conducted, we have only to state, in full concurrence with the sentiments recorded by your Government that we should "deeply regret if any further delay were "permitted to intervene in entering on a work which has been accomp- "lished, or is in course of execution in all the other divisions of the "British Indian Empire; which is universally admitted to be urgently "required," in the Madras Presidency, "and which is, indeed, absolutely "necessary wherever a land tax constitutes the chief part of the Public "Revenue, because it affords the only sound data for judging of the "value of the land."

Para. 43.

LONDON, 17*th December*, 1856.

We are, &c.,

(Signed) W. H. SYKES.
(„) R. D. MANGLES.
&c. &c. &c.

Extract from the Minutes of Consultation under date the 22d April 1857, *No.* 372.

1. The Right Honorable the Governor in Council proceeds to pass orders on the letter, in this department, from the Honorable Court of Directors dated 17th December 1856, No. 17, communicating their observations and instructions on the course of proceeding proposed in Extract Minutes Consultation 14th August 1855, No. 951, to be adopted by this Government, for a general revenue survey and re-assessment of the lands of the several Districts in this Presidency.

2. A copy of this despatch will be furnished to the Board of Revenue for their information, with reference to the resolution of the 14th August 1855; and their attention will be directed generally to the views expressed by the Honorable Court.

Paras. 1 to 14 and 35 to 38.

3. In the paras. of the despatch quoted in the margin, the Honorable Court admit the necessity of a survey and revision of the assessment, and the advantages likely to result from these proceedings. They approve of the extent to which it is proposed to carry out the survey, and of its extension to enam lands, and agree as to the advisability of taking advantage of the opportunity offered by it, of instituting an investigation into rent free tenures. They concur moreover in the proposals made by this Government for dealing with enams held on invalid titles; for connecting the revenue survey by minor triangulations with the great Trigonometrical survey; and for the classification and valuation of land.

4. The only points which call for notice in this place, are those contained in para. 38, wherein the Court desire encouragement to be given to the production of sugar, cotton, and other articles suited for exportation; and in connection with with it, advert to the importance of affording ready means of inter-communication between the several Districts.

5. As regards the formation of Road funds for the last mentioned purpose, similar to that established in South Arcot; which the Honorable Court presume will be made in the new arrangement, the Governor in Council observes it intimated in para. 5 of the letter to the Honorable Court, dated 11th October 1855, No. 44, that, besides the per centage of the gross produce which the Government propose to take in fixing the assessment of the land to serve for the general purposes of the State, it is in contemplation to establish cesses for local objects; one of which it was stated, would be the maintenance and improvement of District roads; the period at which this fund was to be created was pointed out in a later letter to the Honorable Court dated 27th May 1856, No. 7, para. 11, viz. "when the survey and the revision of the assessment" (which have been approved) "shall be fully carried out." This part of the subject will therefore be kept in view during the progress of the above measures.

Paras. 15 *to* 34.

6. In the paragraphs noted in the margin, the Honorable Court have entered largely on the discussion of the measures suggested by this Government, respecting the share of the produce to be taken as the Government demand, the mode of converting that demand into a money assessment, the means to be taken for checking the sub-division of small holdings, and the rights of Merassidars over the waste lands of their villages.

7. The Honorable Court regard the principle advocated by this Government of taking a certain share of the gross produce as the basis of the Government demand to be open to objection, and think that an assessment so obtained will prove unequal in its operation, favoring the most fertile lands, and pressing heavily on the poorer lands. They are of opinion that an assessment proportioned to the net, and not to the gross produce, though attended with difficulties in its attainment, would be found more equitable. The Honorable Court at the same time admit* that the operation of determining the assessment is not one of arithmetical calculation, but of judgment and sound discretion.

* *Para.* 20.

8. The remarks of the Honorable Court on this and the other points indicated above, will receive consideration in due course, and need not interfere with the preliminary operations of the survey, for the commencement of which application will be made to the Government of India. But the Government desire to direct the attention of the Board to the Honorable Court's observations in the paras. previously quoted, as well as in para. 44, in order to their considering the subjects therein discussed in connection with the Honorable Mr. Grant's Minute, a copy of which will now be furnished to the Board of Revenue together with the letter* from the Government of India forwarding it.

*16*th Oct.* 1856 *No.* 1306.

9. On the subject of Meerassy rights, the orders communicated in paras. 28 to 30 are positive.

10. The Honorable Court, having generally approved
39 *to* 45. and sanctioned the arrangements proposed for the survey operations, and for the revision of the assessment, as well as the expenditure of 76,40,000 Rupees on that account, and having further desired that the work should be pushed on as fast as efficient establishments can be organized, and without any needless delay, the Governor in Council resolves to address the Government of India with the view of obtaining their sanction to the nomination of a Settlement Officer and a Surveyor General, in communication with whom the Government will prepare a further list of detailed establishments that may be needed. The Government remark that the services of the Settlement Officer may be made immediately available in assessing those talooks of South Arcot which Captain Priestley has lately surveyed.

(Signed) H. FORBES,
Acting Secretary to Government.

Letter from H. FORBES, Esq., Acting Secretary to the Government of Fort St. George ; to the Secretary to the Government of India, dated 22d April 1857, *No.* 373.

SIR,

1. I am directed by the Right Honorable the Governor in Council to forward a copy of a Despatch from the Honorable Court, dated the 17th December 1856, No. 17, and to request that it may be laid before the Governor General in Council.

2. The Government of India are well aware of the length of time during which the important work of a survey and re-assessment of this Presidency have been under consideration, have had before them the views recorded upon the subject by successive Governments, and have placed on record their own sense of the pressing necessity for the work, and their general approval of the mode in which it has been proposed to carry it out.

3. The Government of Madras therefore persuade themselves that his Lordship in Council will participate in the strong feelings of satis-

faction which they have experienced on receiving so ready and cordial an approval from the Honorable Court, of a work on which the well being of this Presidency so eminently depends, and they confidently rely on the assistance of the Government of India in carrying into early execution the wish which the Honorable Court have expressed, that the work should be pushed on as fast as efficient establishments can be organized, and in obviating the deep regret which the Honorable Court have declared that they should experience, if further delay were permitted.

Para 20. 4. The Government of India will observe that although the Honorable Court have left for eventual decision the question of whether, in fixing the assessment, it should be proportioned to the gross or the net produce of the land, they have fully admitted that the operation of determining the assessment is not one of arithmetical calculation but of judgment and sound discretion.

5. A copy of the Honorable Court's despatch will now be sent to the Board of Revenue, and their attentive consideration of it will be requested, and although it is obvious from the opinion above referred to, that the Court do not intend that action upon their present orders should be stayed, this Government will give every attention to the question which has been raised, when the views of the Board are before them. With the Court's Despatch the Honorable Mr. Grant's Minute of the 13th March 1856, received with your letter of the 16th October 1856, will be transmitted to the Board and their particular attention requested to it.

6. The Government of India will be prepared to find that this Government, having now brought the great question of a survey and re-assessment of the land, to the very verge of commencement, are most desirous of seeing that commencement made.

7. His Lordship in Council is of opinion that the detailed Establishments that will be wanted and the many questions that will arise, in respect to both the survey and assessment, can be satisfactorily ar-

ranged and settled, only in communication with the officers who may be entrusted with the direction of the operations, and the Government are desirous of at once obtaining the sanction of the Governor General in Council to the nomination of a Settlement Officer, and a Surveyor General, on the salaries named in the Extract Minutes Consultation of the 14th of August 1855, and now approved by the Honorable Court, the appointment of the subordinate Establishment being left, until the Government have had an opportunity of discussing with the chief of each Department, the detailed plan of operation he may propose, and of consulting him as to the Establishment he may require.

8. The Right Honorable the Governor in Council feels that it is quite unnecessary to press upon the Government of India the great importance of an immediate commencement of a work, for which this Presidency has been waiting for so many years, argument has been exhausted in discussing it, the Government of India and the Honorable Court have alike admitted its urgent necessity, and economy will be best consulted by immediate and vigorous action.

9. I am instructed to point out that if additional proof were needed of the necessity of the immediate sanction now solicited, it would be found in the present condition of the district of South Arcot, where, with the approval of the Government of India the survey of three large and highly cultivated talooks has been completed, in which the settlement officer will find immediate occupation for his Establishment. An additional Sub-Collector has lately been appointed to the District, and it has been proposed to confide to him a work for which the Collector has no time; there is however no Establishment for this officer, and the Governor in Council is of opinion that his proceedings should be stayed, and that the re-assessment of the three talooks should be undertaken by the settlement officer for whose appointment I am now to apply. It is obvious to this Government that the work in South Arcot should be conducted on precisely the same principles that are to obtain, and in precisely the same manner, that is to be followed, in other Districts of the

Presidency, and that as the survey has been completed, the ryots should no longer be kept in uncertainty as to the terms on which they are to hold their land.

10. I am to enclose an application in the usual form for the sanction of the Governor General in Council to the appointment of the two officers whose services are needed to organize the two Departments, of survey and assessment, and to state that further application will be made for the subordinate Establishments, as soon as their details have been decided on, in communication with the heads of each.

Year.	Charges.		
	Ordinary.	Extra-ordinary.	Total.
......	....	....	....

Extract from Home Department of Government of India. No.	Date.	Office to which the proposition refers.	Nature of charge. Present scale.	Rs.	A.	P.	Proposed scale.	Rs.	A.	P.
		General Survey of the Madras Presidency.					1 Superintendent of Settlement..............................	3,016	10	8
							1 Surveyor General.............	1,000	0	0
							Total..	4,016	10	8

FORT ST. GEORGE, 22d *April*, 1857.

Proposition. Permanent. Increase per month.	Proposition. Permanent. Decrease per month.	Period.	Proposition. Temporary. Increase per month.	Period.	Proposition. Temporary. Decrease per month.	Casual or Extraordinary.	Grounds of Proposition.	Local Government's Recommendation.	Orders of the Govt. of India. Home Dept. Remarks.	Orders of the Govt. of India. Financial Dept. Remarks.	Orders of the Govt. of India. Financial Dept. Orders.
Rs. A. P.	Rs. A. P.		Rs. A. P.		Rs. A. P.						
....	....	Until the completion of the General Survey and Settlement.	3016 10 8				Vide letter to the Secretary to the Government of India dated 22d April 1857, No. 373.	Favorable.			
....	....		1000 0 0								
....	....	...	4016 10 8	...	....						

(Signed) H. FORBES,
Acting Secretary to Government.

Read the following endorsement from the Officiating Under Secretary to the Government of India, in the Home Department, on the application of this Government dated 22d April 1857 for the following temporary Establishment for the General Survey of the Madras Presidency.

	Rs.	A.	P.
1 Superintendent of Settlement......	3,016	10	8
1 Surveyor General...........	1,000	0	0
Total...	4,016	10	8

No. 2446.

Sanctioned by order of the Right Honorable the Governor General in Council.

COUNCIL CHAMBER, *The* 12*th June*, 1857.

(Signed) C. H. LUSHINGTON,
Secy. to the Govt. of India.

No. 593.

Forwarded to the Government of Madras for information.

By Order.

HOME DEPARTMENT, *The* 23*d June*, 1857.

(Signed) R. B. CHAPMAN,
Offg. Under Secretary.

Extract from the Minutes of Consultation dated 15*th July* 1857, *No.* 713.

Ordered that the foregoing sanction be communicated to the Board of Revenue, with reference to Extract Minutes of Consultation 22d April 1857, No. 372, and also to the offices of Account and Audit.

(Signed) H. FORBES,
Acting Secretary to Government.

Letter from R. B. CHAPMAN, Esq., Officiating Under Secretary to the Government of India; to H. FORBES, Esq., Acting Secretary to the Government of Fort Saint George, dated Fort William; 5*th June* 1357, *No.* 810.

SIR,

With reference to para. 4 of my letter No. 1306, dated the 16th

October last, I am directed to forward for the consideration of the Government of Fort Saint George the accompanying copy of a Report* from the Deputy Surveyor General on the details of the proposed survey of the Madras Presidency.

* *No.* 13 *dated 6th May* 1857.

From Major H. L. THUILLIER, Deputy Surveyor General; to CECIL BEADON, Esq., Secretary to the Government of India, Home Department, Fort William; dated Calcutta, 6th May 1857, No. 13.

SIR,

I have the honor to acknowledge the receipt of your letter No. 1505 of the 16th October last, forwarding for my perusal, a volume of printed papers relative to a project for the Survey and Settlement of the Madras Presidency, which has been approved generally by the Supreme Government and recommended for the sanction of the Honorable Court of Directors, desiring me to furnish an outline of a plan for organizing a professional Survey Establishment, capable of commencing the professional Survey of that Presidency simultaneously, at not more than four different points in concert and communication with the Revenue authorities under the control of a Surveyor General, and calling for any observations as to the mode of carrying on the Survey, as well as to the distinction of duty between the professional and Revenue officers, which my experience might suggest.

2d. In obedience to the above instructions, I beg to submit the following remarks on the several points alluded to.

3d. From the volume of printed papers relating to the proposed General Revenue Survey of the Madras Presidency received with your letter, and also from the "Selections from the Records of the Madras Government No. IX. on the Revenue Survey," it appears that a minute and accurate detail measurement of holdings, is contemplated to be carried out in the Madras Presidency, with a view to a ryotwarry assessment of the land; and I find that a small establishment has been employed in South Arcot under Captain Priestley since, or prior to 1854, when the Supreme Government authorised a full party at an aggregate cost of 41,790 Rupees as per margin,* for a period of two years, subject to a full report at the

	Rupees	*A.*	*P.*
* *For survey and measurement...*	39,510	0	0
For classification and assessment.	2,280	0	0
Per annum.............................	41,790	0	0

expiration of that period. The details of this establishment are specified in the resolution of Government in the Financial Department dated the 8th September 1854, printed with the Madras Selections No. IX.

4th. In the excellent Report dated 27th February 1854, of Captain Priestley's initiatory operations in South Arcot, drawn up by Mr. W. H. Bayley, the Secretary of the Revenue Board, printed in the Selections, I gather that the main object of the Revenue Board and of the Surveyor Captain Priestley, is to conduct a Survey of *Fields* or Holdings, on the most approved principles, and that beyond a small amount of professional accuracy in fixing the village boundary, and in making three or four villages join together, no general scientific precautions are deemed either necessary or expedient, for securing professional accuracy over extended areas, either to ensure a congregated map of a Pergunnah, or of a Zillah, which shall have any pretensions to refinement or even ordinary approximation to truth.

5th. Before we can in any way form an idea as to what an Establishment should be for these Madras Surveys, it is absolutely essential that the system of Survey to be adopted, or the requirements of the local Government in respect of such Surveys, should be fully understood. To give the outline of a plan, or any suggestions for organizing a Professional Establishment, it would naturally be in consonance with the system prevailing on this side of India, which is essentially of a professional and scientific character, such as I conceive alone applicable to the delineation of large tracts of country, and sufficient for the formation of Maps which will increase our knowledge of the Geography of India, whilst at the same time the Revenue requirements of the operations are not lost sight of.

6th. The Establishment framed for the conduct of the Survey of South Arcot, is evidently of a mixed character, partly professional and partly for the Native Field Measurement, or what is termed here, the Khusrah, as I have endeavoured to analyze it in the margin.*

		Rs.
Professional.	* 1 Superintendent.	575
	2 European Assistants....	400
	3 Head Surveyors at 70.....	210
	6 Deputy " at 30.	180
	9 Writers, Computers and Draftsmen. ...	195
	129 Measurers and Duffadars....	549
	18 Peons.	96
	Travelling allowance Tentage and Batta for Head and Deputy Surveyors	60
	Total...	2,265

Khusrah.	30 Survey Aumeens....	562
	30 Do. Gomastas	300
	Travelling allowance Tentage and Batta for Ditto...	165
	Classifiers and Gomastas, &c...	190
	Total...	1,217
	Grand Total.........	3,482

With this disposition, the Revenue Board and Captain Priestley contemplated getting over 720 square miles of *Fields* per annum, and with unbroken, waste, jungle, hills, &c., about 800 square miles when the work was in full operation, and the Government of India expressed an opinion that if such an area of Fields could be disposed of annually, that the work would be cheaply purchased in a country like that of Arcot in which the ryotwarry system prevails.

7th. It is evident from the details given in the above scale of Establishment, that its formation has special reference to conducting the Khusrah, or the internal sub-division of Fields, simultaneously, and as a part in fact of the Professional work, and the Board's Report throughout leads to the same inference. The system may be termed, if I apprehend it rightly, nothing more than a scientific Khusrah, or a superior land measurement of fields, somewhat on the principle of the Bombay Revenue survey, only with village boundaries, laid down by Theodolite Professionally, in addition. The fields thus being the primary object and the village unit being almost the apparent limit of accuracy proposed by the surveyor, without any aim at generalization or general Topography, the ingredients composing the establishment proposed by the Madras Revenue Board, are doubtless made applicable and best adapted to that end, and with our imperfect knowledge of the ways and means and local peculiarities of the sister Presidency, it would be inexpedient my attempting to suggest any modifications in the machinery for carrying on a work of this peculiar nature.

8th. The nucleus of a professional establishment may be said to have already been formed by Captain Priestley, and from this, all the other survey parties required for the Madras Presidency, will have to be raised season by season, as every individual learns his duty and instructs others, so may drafts be gradually taken out of the parent establishment for the formation of other parties. All depends on the superintending officer and his administrative ability in training and instructing others, and in making every person useful in his own peculiar line. The best policy in all survey operations, is to begin with a well organised com-

pact Establishment, vigilantly supervised, and then to expand it gradually as success and experience warrant development. If Captain Priestley has had two Covenanted Assisstants for two years under him, in all probability they are by this time so well versed in the general duties, as to be competent for detached independent employment; and if so, they in their turn must commence with a few hands and feel their way gradually, until by degrees they can teach a sufficient number, and thus complete their effective strength.

9th. On this side of India every survey Establishment, with one or two exceptions, has a Covenanted Superintendent and a Covenanted Assistant, the latter generally selected for his qualifications as a Mathematician and Draftsman, the preference being given to officers educated at Addiscombe or Sandhurst where an excellent elementary education is afforded, and a practical insight obtained also in the first principles of surveying and the use of Instruments. These Covenanted Assistant Surveyors, serving in a subordinate capacity under able guidance for two or three years, and in a large Establishment perfectly trained to its work, the succession to the charge of surveys is thus well kept up, and departmental experience and merit made the step to promotion.

10th. I would therefore venture strongly to recommend, that great care be observed in the selection of officers for this duty, and that none be admitted into the Department who are not both physically strong and young, and whose pretensions as Draftsmen are not above mediocrity. Officers of the Ordnance Corps, Engineers and Artillery are obviously by their early training and attainments the best fitted for employment in a scientific profession, and I believe it has been found preferable to employ young officers of not more than 5 or 6 years' service, who are more likely to adopt proper habits of active exertion, and to imbibe a taste for hard and rough work, than those of more mature age and residence in India, with whom it may be irksome to commence learning a new and difficult profession, and whose tastes do not harmonize with the style of life ; above all, I believe a strong partiality and taste for such description of work as well as artistical talent as a Draftsman to be a sinê quâ non, on the part of the candidate.

11th. Many of the Bengal surveys were originally organised, without any experienced hands. Raw recruits both European and East Indian, as well as Native, had to be taken, and thoroughly instructed

in every part of their duty, almost every officer has had to make his own party and according to the ingenuity, tact, and perseverance of the officer in charge so will an Establishment be rendered effective in more or less time. To teach and guide others, all new to the work, the Surveyor himself must be a competent officer fully acquainted with the theoretical part of his duty, if he has not had the advantage of any great amount of experience in the field.

12th. The subordinate grades of Assistants and Sub-Assistants must be recruited in the same way. It is in vain to look for, or expect ready made Surveyors any where, wherefore if promising youths of good education and possessing a fair elementary knowledge of Mathematics, with some signs of a taste for drawing can be found in the Educational Establishments at Madras, they may prove the proper description of persons to join the Department, and receive their further education in practical matters afterwards. The test of qualification for such Sub-Assistants is laid down in the enclosure marked A, and we find no difficulty in obtaining very promising young men, both for the great Trigonometrical and Revenue surveys, possessing these qualifications, who are willing to join on the usual salary,* of either 107 or 75 Rupees as the case may be, giving the undertaking to serve 3 years, an important clause in the agreement, since it takes about 2 years to render an Assisstant fully competent in all the duties expected of him, and before which time he in reality makes but little return for his salary, and the time and labor bestowed on him.

Appendix A.

	Rs.
* *Great Trigonomitrical survey.*	107.
Revenue. Ditto....................	75.

13th. As I conclude Captain Priestley's establishment is still employed in South Arcot, it appears to me that the object to be obtained of raising four full parties will best be consulted, by certain number of both Covenanted and Uncovenanted Assistants being at once appointed and posted as supernumeraries to learn their duties under this experienced officer. Whether in Cantonment or the field at this season of the year there is much to learn, and into which a practical insight can alone be obtained in a Surveyor's office. These additions doubtless will not in any way aid or assist the work Captain Priestley may now have in hand, but on the contrary, his time and attention will be

much occupied in teaching; consequently, the expense of the new hands might be kept separate, and not debited to this Surveyor's work to swell his average cost. It will however be true economy to the State, to give both officers and subordinates this advantage, if it can possibly be managed.

14th. In proportion as the European agency is obtained and perfected, so can the Native Agency be cared for, entertained and trained up; and according to the employment of Native Agency under a proper system of check ad supervision, the cost of the work will be effected. In the Bengal Presidency the relative proportion of European and Native Agency for professional Survey alone may be estimated as per margin,* and as more fully detailed in the copy of one of the existing establishment's pay abstract for a month of the field season (Appendix B.)

* 1 *European Revenue Surveyor.* } *Mily. Officers.*
1 *ditto. Convenanted Assistant.* }
1 *ditto. full Assistant Surveyor.* } *Uncovenanted.*
5 *ditto. Sub-Assistants.* }
30 *Native Surveyors or Mootsuddees.*
250 *Measurers, or Tindals and Classies.*
19 *Guard (18 Burkundazes and 1 Jemadar.)*

15th. The Native Surveyors of the first class, salary varying from 20 to 60 Rupees per mensem, are competent to survey with the theodolite and chain, to keep field book and protract work, they as well as the 2nd class men, whose remuneration is from 10 to 25 Rupees can also use prismatic compass or circumferenter, and make field map of the interior details of cultivation, waste, and other topographical features. The former are employed in the boundary work, and having taken the horizontal angles round a village, and measured the lines of the polygonal figure, and taken the offsets to the boundary as marked off by mud pillars by the demarcation (or Civil) department, send their field book in to the European Assistant in charge of the camp or division, who after applying the proper bearing to the leading line, as deduced by astronomical observation, and carried on successively through each main, or grand circuit, computes the traverse of the village, and thus tests daily, the work of every Native Surveyor. The several duties of the component parts of a Bengal Establishment will however be found fully explained in the manual of surveying for India. Copies of which, I am informed by your letter under acknowledgment, have been supplied to the Madras Government.

16th. In the Bengal Presidency where the duties of the revenue surveyor are now universally confined to the Professional survey alone, an establishment of the above description may be considered to be the most appropriate and the most economical. The expenses are regulated under the monthly audit of this office by a fixed annual maximum grant, as authorized by Government, the amount of which is now fixed at 37,524 Rupees, and the larger expenditure of the 6 or 7 months of the field season, is balanced by corresponding reductions during the recess; when the survey party returns to cantonments or a civil station, and all superfluous measurers are discharged, and many of the Native surveyors permitted to go to their homes on half pay. The recess can never be reckoned less than 5 months, and is generally of even longer duration in lower Bengal, and this period of cessation from actual survey is absolutely necessary to enable the surveyor to complete all his maps and computations, and to lodge them in this office in a satisfactory manner before he embarks in a new campaign.

17th. The above establishment and expenditure only provides for a complete village survey including a separation and record of all the usual details of "land under cultivation," "fallow," "fit for cultivation," "waste, jungle, jheel &c.," together with a regular delineation of all the Topographical features of the country on the large scale of 20 chains or ¼ miles to the Inch; no separate measurment of *fields* (khusrah) or even of small estates comprising portions of village, is included in this estimate. This duty is performed by the civil or settlement establishment, and entirely checked by the officer of that Department, the results of the Professional survey being their guide for the aggregate areas of each description of land, and of the entire village, and consequently this Department is in no ways responsible for, or concerned in the record of the separate fields or minor estates, which is exclusively managed and paid for by the civil branch.

18. My own views on this question do not accord with those of many of the authorities who have had the control of extensive settlement operations, and very materially differ from the policy of the Revenue Board Lower Provinces during the last 6 or 7 years, in regard to the method of defining and mapping the mehals, or small estates, in the perpetually settled Provinces, where the specification of fields and of the description of the land is no object, all that is required being the area and position of every separate estate paying revenue to Government.

I hold, that all measurements of whatever kind whether professional or khusrah, can best be checked and supervised by a professional Surveyor, and that the two combined operations of survey and measurement of fields, by advancing simultaneously under one head, must have an advantage over separately conducted, and separately superintended, operations. I believe that an active Surveyor who thoroughly understands his work, who is supported by 5 or 6 European Assistants scattered over the District under survey, and whose tenure of office is generally far more permanent than that of a Civilian, will be found more competent to keep a body of 100 or 150 Navive Aumeens, the number usually required in a District, in proper check; my experience tells me that such men as measuring Aumeens require the most constant and vigilant watching, as well as the certain knowledge of the professional survey coming in their steps to keep them within bounds, so far therefore it appears to me that the Madras proposed system is worthy of admiration, for the fields, will be laid down pari passu apparently with the village boundary, and with great precision and accuracy and essentially under the control and management of the Surveyor himself.

19th. In the Madras system in fact the attainment of the separate record of the fields, appears to be the one great and only object aimed at, to the exclusion almost of those general principles of professional practice, which are obviously called for, when projecting extensive surveys of immense areas, embracing zillahs or Districts and even provinces. That the object of this detail measurement, or khusrah, in a country about to come under a Ryotwarree assessment, is most important I am well aware, and of the expectations of Captain Priestley and of the Madras Revenue Board of getting over 700 square miles of *fields*, in this style, with the strength of establishment laid down, and if similar success can be guaranteed in all the four different surveys proposed to be carried on, the results thus obtained will be well worth the money expended.

20th. It would be very interesting to know what may be the actual experience of the working of Captain Priestley's establishment for the last two seasons. Whether he has been able to attain such progress with the allowed means or not. The average size of the fields is said (para. 23 Board's report) to be half an acre, a field of two acres being a rarity ; according to the size of the fields of course must be the progress, and it certainly seems, according to the practical experience gained on this side of India, that for 30 Ameens the apparent number

of men entertained to accomplish 700 Sq. Miles of fields of such an average equal to 896,000 fields per season, which gives 29,866-6 fields each man, or 2986 fields each man per mensem, or 114 fields per diem, 10 successive months in the year, is an enormous outturn, which when taken in consideration with the improved mode of measurement proposed is the more remarkable. In the Board's Report, page 20, paras. 73 and 74, the estimate is made at 25 Fields per diem for one Aumeen or $2\frac{4}{10}$ Sq. miles per mensem, taking 60 acres to the 25 fields, which however does not correspond with what has been previously stated as the probable average of the size of fields, but on the contrary is more than four times in excess of that average. It is possible that sufficient experience has now been attained by Captain Priestley to warrant a more definite estimate of progress.

21st. Whatever progress however may be gained in this minute delineation of the Revenue requirements of the survey, the laying down of the Fields, it strikes me that no General Survey of the Madras Provinces ought to be permitted to be commenced, and carried on in the present day, without full and ample precautions being taken for making the materials subservient to the general purposes of Geography. It is so evident from the published papers, that a very little more would suffice to secure this object, that it would be a thousand pities to neglect it. The Madras Peninsula already boasts of a Topographical survey on a moderate scale made from 30 to 40 years ago based on Colonel Lambton's Triangulation, and with the exception of a very small gap here and there, an absolute net work of Triangles covers the whole of Southern India, and consequently the utmost facilities exist for connecting the present operations with the old points, which will afford the surest means for adopting the present revenue materials to the same purpose, as we have so successfully done on this side of India.

22nd. The lapse of so many years makes a great difference, in the appearance of the face of any country, and it will naturally be found, that between the old surveys, made for the most part, apparently by plane table sketching, on the scale of one inch to the mile, and the new survey laid down with great minuteness of detail on the vast scale of 16 inches to the mile (or 16 times greater, which must be reduced to a smaller and more tangible scale suitable for general maps,) the detail shewn will be almost entirely different. Hence it cannot in my humble opinion, be urged that the old Topographical maps are suffici-

ent for all purposes of the present day, or that the present very minute and careful survey could be incorporated or dovetailed therein; such a procedure I believe would be impracticable for many reasons which might be urged, and therefore good Topographical Maps should not be rejected, when they can be so easily rendered, and when every day shews the pressing want of them for new Engineering works of practical utility.

23rd. The first great principle which I look upon as of the most vital importance in subordinate survey operations, is the due and perfect connection and identification of the Topographical features, or stations of the Revenue Survey with the points of the Triangulation, whereby alone, the Maps of the former operations can be amalgamated, and adjusted in the great Atlas of India, or indeed in any general Map, on which lines of Latitude and Longitude are required, with any pretensions to accuracy. If therefore satisfactory Topographical Maps are expected or desired in the Madras Presidency, it will be very essential for the Surveyor to pay much more attention to the above condition than the Madras Revenue Board seem inclined to recommend. In paras. 13 & 14 of their report, allusion is made to this connection of the two Surveys, and the advice of Captain Jocob, the Honorable Company's Astronomer, (himself formerly employed in the Bombay Survey) taken, the result of which appears to be summed up in the very remarkable expression, that "Captain Priestley's method of survey requires no such aid."

24th. It would appear, as I have before remarked, that the proposed system for Madras, ranges no higher in the scale of Surveys, than that of a very good Khusrah, or Parish measurement of land, which in fact is no *survey* (properly so called) at all, and therefore if compared with the Bombay similar description of work, (which I have always understood to rank as a mere civil settlement operation,) then the connection with the G. T. Survey of India, may be deemed superfluous. But if the Madras Revenue village Maps are ever to be put together, so as to form a Pergunnah, or even a talook congregation of the entire number of villages composing such subdivisions of the country, and from which again a District or Zillah Geographical Map could alone be constructed, then the insertion of the points of the great Triangulation will be imperative, and if they still exist on the ground it would be difficult to understand, in what way such an observance, could either impede

or obstruct Captain Priestley's work. The record of a known and well fixed point, of which the Latitude and Longitude is known, on the maps of a new survey of the Madras Provinces, can possibly do no harm, or prove inconvenient to fix where every village is surrounded by angular work obtained by a Theodolite; whilst on the other hand, its omission may, and assuredly will, hereafter cause serious trouble, doubt, and perplexity, when Geographical materials have to be compiled, not by the Surveyor himself, but by the Surveyor General or Superintendent of the whole of the surveys.

25th. On the above view of the case therefore, whatever Captain Priestley's method of survey may be, he can in no ways be independent of, or despise such aid, as that which an accurate survey on a Trigonometrical basis affords, and which very fortunately will be found to exist in all parts of the Peninsula of India. Each new District survey ought to have some fixed, and well known point of departure from which, its operations should emanate and all its calculations be computed. I believe a large chart of the whole of this Triangulation has been already furnished to the Madras Revenue Board, and the numerical data of a great portion of it, with Extracts from Colonel Lambton's Memoirs and Papers are now under transcript in this office on the requisition of the Madras Government. There will be nothing wanting therefore to render the Proceedings of as many Surveyors as may be appointed, clear and unmistakable, and my earnest recommendation is offered, that the great and lasting importance of this point may not be overlooked or neglected. Indeed, I am glad to perceive that the Government of Madras express a decided opinion on this subject in the Resolution dated 14th August 1855, para. 8.

26th. In the 15th para. of their report, the Madras Revenue Board are in error in stating that in the N. W. Provinces the *Professional* work of the Revenue survey was performed by officers employed in the great Trigonometrical survey, and that they did not extend their labors to village field work. The Revenue Survey Department is essentially distinct and separate from that of the great Trigonometrical survey, the officers of which, are strictly confined to the Principal and Secondary *Triangulation,* they have nothing whatever to do with Topography or details of any sort, and their operations are pursued without reference to Districts or any other surveys which may be in progress. The

Revenue Surveyors of the N. W. Provinces invariably maintained the measurement of fields (the khusrah) under their own guidance, the only part of the khusrah then performed by the settlement officer, was the insertion of the quality of the soil, or nature of crops, in the Aúmeen's Chitta or field Register, the whole of the measurement duties were, as they always should be in my opinion, under the Surveyor. That failures in the khusrah occurred (as pointed out in the Board's 80 to 84th paras.) there can be no doubt; they were caused I apprehend by the inordinate race amongst the N. W. Surveyors of those days for large areas, when quality gave way to quantity, and when the whole of the operations were under the control of the Agra Revenue Board, instead of under the proper professional check and supervision of a Deputy Surveyor General.

27th. It is equally a fact, that even the results of the professional survey of the N. W. Provinces of those years were much neglected, and the combinatian of the village survey into proper Pergunnah Maps not carried out in the way it undoubtedly ought to have been, owing to the extraordinary haste, with which the Surveyors were urged to get over the ground for settlement purposes. The records of those surveys, from never having been deposited in the Surveyor General's office, are now incomplete, and many of them not forthcoming at all, and for many years past a series of Zillah Maps on the useful scale of 2 miles to the inch, exhibiting village boundaries, have been under preparation at Agra, and by the assistance of the local Collectors, but with very partial success, and it is estimated that this object which the N. W. Government have long had very much at heart, will still occupy ten years more, such a lamentable result may be attributed entirely to the two causes alluded to above, viz. the absence of direct and special competent superintendence over the whole of the operations, and the imprudent and rash speed of the executive Surveyors, large areas and low rates being the chief thing sought after.

28th. It is a consolation to be able to add that such a system has long since ceased to hold any sway in this Department. With the date of the cessation of the N. W. surveys, large areas and low rates with inferior work to match, have been exploded, and in the present day no Surveyor would risk his professional reputation by following such an example, the ill effects of which I may say are even now constantly felt in this office in the course of our general duties. The mention of these

circumstances in this place, will, I hope, prove not entirely without its use as a beacon to the Madras Surveyors.

29th. Next in importance to a proper and complete identification with the points of the great triangulation and a permanent point of departure or first station for the survey, is the nature of the meridian on which the operations are based. The Board remark in their 44th para. that the Surveyor has not laid down a true meridian, but was working entirely from a magnetic one, and that the outline of every village being independently and carefully taken by traverse, a set of several villages will ultimately close "near enough for all practical purposes." They thought however with Captain Priestley that it was desirable to have a check of more accurate nature, but again in para. 47 they did not consider it necessary for the Surveyor "to lay down his Azimuths with that rigorous accuracy that was required in the N. W. Provinces, where the lines were connected with the G. T. Survey;" and the Board therefore left it to him to use such method as might be adapted to the instruments with which he was furnished. From the 48th para. it further appears that nothing beyond a 5 inch Theodolite forms the present equipment of the Surveyor.

30th. From the above it would seem that the Surveyor is at present obliged to adapt his style of Survey to the nature and capability of the instruments with which he is supplied, instead of first determining on a rigorous method, and then providing his instrumental equipment accordingly. In the 48th para. of the Board's Report, the proper and usual system of working from whole to part, and embracing large circuits of a whole talook or Pergunnah in the first instance, the smaller or village circuits being filled in within it afterwards, is hinted at, as having been proposed by Captain Priestley, though his other duties would not permit him to carry it out. It is precisely such a course that I would earnestly enjoin, as the first step towards securing faithful maps of a Pergunnah or talook, and hence of a Zillah as the only way of conducting such a Survey, as we have in Bengal. To effect this also, every independent village laid down on a Magnetic meridian will never answer, because, although as the Board anticipate, a few village traverses might join well enough together for all practical purposes, yet the accumulation of error in many hundred village circuits would soon become so large, that the Surveyor would be thrown into inextricable difficulties. Not only must the whole work be based on the *true* meridian, carefully

established for the Initial Azimuth, as derived from astronomical observations; but such true meridian must again be frequently checked by corresponding astronomical observations, and the Azimuth as conveyed through the angular work from circuit to circuit constantly tested. Without this is done there will be no prospect of the main circuits closing and proving with the necessary accuracy. The whole of this process to which I will only here briefly allude, is described at great length in the "Manual of Surveying Chapter XII. Part III.," and will no doubt be familiar to the Madras Surveyor.

31st. Having in view therefore a Professional Survey of the Bengal stamp, as a very necessary ingredient of the Madras proposed operations, I would counsel the strictest observance as to the mode of establishing and laying down the true meridian, and in preserving the true inclination of the Azimuth as conveyed from circuit to circuit. It may be sufficient for all purposes of Revenue, and for the requirements of the Board of Revenue, that a set of a few villages join well together, but generalization and good Topographical Maps cannot be obtained by such a system; and if any thing beyond the isolated village plan is expected, or deemed requisite for the general purposes of Government, a rigorous prosecution of the Professional part of the work must be adopted. In the 10th para. of the Resolution of the Madras Government, I observe, it stated, that talook Maps should be prepared, and permanent boundary marks established, without which two securities, the work would in the opinion of the Government in a few years be lost.

32nd. In the 41st para. of their Report, the Revenue Board remark that they do not consider themselves qualified, in recommending the additional expense that would be incurred in preparing Maps *purely Topographical*, and that all nullahs, roads, tanks, &c., being laid down *as fields* and clearly defined in the Khusrah measurement, a little extra coloring would give every Topographical information necessary. The question however appears to me, to be one of scale, and as to the nature and extent, of the Maps to be furnished by the surveyor. This khusrah or measurement of the fields, is to be on 16 inches to the mile; this is most appropriate for such minute detail work, and fields of half an acre average size could scarcely be shewn on a smaller scale, as the multiple of 4 it is also particularly convenient for all subsequent reductions and incorporation as Geographical materials. But I submit, if the duty of

the surveyor is to be confined to these village plans on such a large scale, but the survey results will be useful alone to the settlement and village authorities, and that no one else could possibly make use of them, for even three villages joined together on that scale, would produce a sheet of paper altogether prohibitory; neither could such large plans for many Districts be multiplied except at a very heavy cost and with great expenditure of time.

33rd. To prepare *purely Topographical* Maps would perhaps be foreign to the immediate object in view, but if the Revenue measurements are to extend over many talooks, Pergunnahs and Districts, there must be some sort of general or Index Maps, prepared as guides, to a ready comprehension of the village plans and their relative position when congregated together. In fact some sort of generalization, and combination of the materials thus produced by the. Revenue measurements seems to me indispensable. The question therefore appears to me to resolve itself into this, should the surveyor furnish Index Maps on a convenient scale, showing all the village jurisdictions comprised in a talook or Pergunnah, or other convenient size block of area, and ought such Map to be a mere outline skeleton of boundaries, or accompanied with the usual general Topographical features of the country which in reality have all been taken up in the field and only require reduction and compilation, to bring them into practical use?

34th. In other words, should the labor bestowed in the field, be reaped in the office, and turned to practical account, or be allowed to be be dormant, recorded only where a few persons can obtain access to it? or should the results of the Madras surveys be purely of a Revenue character or Revenue and Topographical combined, affording valuable information to the Engineer as well as the Collector? The difference in the expense will I believe be trifling in comparison with the superior advantages gained. It is beyond my competency in the present state of the question, and with the information before me, to predict what would be the relative cost of a purely Revenue or a Revenue and Topographical survey combined, in the Madras territories; this may possibly be estimated more closely by Captain Priestley, and with his experience before him, together with a fair consideration of what I have endeavoured to recommend, the question may be placed on fair grounds for the information and decision of Government.

35th. In first establishing large survey parties, their Instrumental equipment is a matter of primary importance. It would appear from

the correspondence that the means of providing suitable instruments do not exist at the Madras Presidency, and if such should still be the case, or if proper arrangements have not been made to indent on the Honorable Court for a sufficient supply to meet the probable wants of the entire Presidency, I would suggest that applications be made on the stores of this Presidency, and I have no doubt all the immediate and necessary wants for four distinct surveys, could either be complied with, or procured from the European dealers in Calcutta in good time for the ensuing cold season. Annexed is a list of the instruments in use with a Bengal survey, and which may be said to be essentially necessary for carrying on the Professional operations. The number of Theodolities attached to a party, allows for keeping two or three in reserve to provide against accidents, which in very large establishments and with extensive native agency, must be anticipated. The wear and tear of a Theodolite in a Revenue survey is enormous, exposed for several months to all the changes of atmosphere and the influence of the dust, between sunrise and the sunset, it requires careful surveillance and cleansing on the part of the European Assistant at stated periods.

Appendix C.

36th. As the best and most intelligible way of illustrating my remarks, in respect to the style of Maps which I consider a Revenue Surveyor should produce, I beg to forward the specimens of one of the Bengal surveys as detailed in the margin.* It will be observed that the one Inch Maps, exhibit the unit of the survey the village jurisdiction, and consequently form a complete Index to the Revenue Plans of the villages. This is essentially the Revenue feature of the records, and by possessing a net work of village jurisdictions, the Pergunnah and the District can be divided off into any convenient number of larger jurisdictions such as Thannas, Moonsiffees, or Deputy Magistracies without its being necessary in any case to deviate from an actually surveyed line, and consequently from a known, and

APPENDIX D.

* 4. The Baraset Division of the 24 Pergunnahs District, in four uniform Sections scale one mile to the Inch.

2. Separate Pergunnah Plans of the Nuddea District, scale one mile to the Inch.

1. District Map of Nuddea, forming an Index to the Pergunnahs scale 4 miles to the Inch.

1. District Map of 24 Pergunnahs, scale 4 miles to the Inch.

8 Total.

recognisable line in the Field. In addition to this information, the whole of the Topographical details as laid down by the Professional survey by means of the Prismatic or surveying compass and chain, Plane Table or Circumferentor, are well shewn, to the fullest extent of which the scale is susceptible.

37th. From these materials the District or Zillah Map is compiled, with the aid of the numerical data duly recorded on the original manuscripts of the surveyors, and thence incorporated into the engraved sheets of the Atlas of India, by the due identification of the points of the great Trigonometrical survey, which are all carefully shewn, and their direct distances as obtained by the Revenue operation, calculated, and then compared with the data of the former survey, from which the error of the work is deducible. By an inspection of these Maps the general features of the country are at once understood, the relative positions of the villages one with another are defined, and if more minute details are sought, or a boundary requires investigation, the village Plan can be referred to. As a combination of the Topographical and Revenue results, I believe these records will be found invaluable.

38th. In the North West Provinces this generalization is carried still further, and the village unit is even shewn on the District Maps, and by thus obtaining the whole of the village jurisdictions at one view great advantages are derived. Here the average size of the village is about 700 or 800 acres (or 1-14th square mile) which admits of their reduction to a scale of 2 miles to the Inch, but in the lower Provinces where the average size does not exceed 350 Acres or half a square mile, the 2 mile to the Inch scale, will not admit of such minute subdivision being shewn, and consequently the one Inch scale is obliged to be resorted to, and as that is too large for a whole Zillah, the Pergunnah Maps are separately published. A good specimen of a District Map shewing village boundaries is likewise forwarded as specified in the margin.*

* *In duplicate.*

APPENDIX E. District Map of Seealkot 2d Edition. Punjab Proper. Scale 2 miles to the Inch District Gooroodaspore. Scale 2 miles to the Inch.

39th. It is precisely such maps as these that the late Lieutenant Governor, N. W. Provinces, Mr. Thomason, declared were essential to make both Revenue and Judicial officers efficient in the performance of their local duties. I have, during my tenure of office, consulted many

Revenue officers, and have heard but one opinion from them as to the superior utility of these maps, and therefore I commend them to the notice of the Madras Authorities.

40th. The above remarks will, I trust, be sufficient to explain my views as to the most desirable mode of carrying on the proposed survey as called for in your 2d para. It is now necessary to advert to the distinction of duty, usually observed between the Professional and Revenue officers.

41st. Allusion has already been made to the conduct of the khusrah or measurement of the fields, this I think has wisely been entrusted to the Surveyor, and he will no doubt do it justice; but although in the 20th para. of their Report the Board of Revenue, are evidently alive to the importance of the village boundaries being traced before the Surveyor commences his work, yet I perceive no distinct provision made in the correspondence before me, for the machinery by which the very important and primary duty of demarcating and adjusting the boundaries prior to, and well ahead of, the survey, is to be performed. On this, the progress and satisfactory results of the survey and measurement, will undoubtedly depend, for if the Surveyor proceeds in advance of the settlement of disputes, his work is rendered liable to revision, and unless the field marks are erected before the Surveyor goes on the ground, it will be impossible for him to proceed with that regularity and expedition which is so essential in extensive operations. It is not only necessary therefore to provide for this important point, but to do so in a manner which shall positively prevent all hindrance or detention to the Professional Surveyor.

42nd. For the assesment and settlement it has been wisely determined to have separate and distinct officers (para. 39th of Madras Government Resolution of the 14th August 1855) it having been established in other parts of India, that such duties cannot safely be entrusted to the ordinary district authorities. With a settlement officer therefore for each survey or zillah, there will be no difficulty, in his providing for the civil duties both preparatory to, and subsequent to survey, as so forcibly enjoined in the "directions to settlement officers in the N. W. Provinces" published by that Government, copy of which has been supplied to the Madras Government as stated in your final para. In Bengal the cost of demarcation including villages, and the minor estates contained within them, is very heavy, equal in fact, according

to the present system introduced by the Board of Revenue lower provinces, to the expense of the professional survey.

43rd. This demarcation however of the internal or small estates furnishes all that is required of a khusrah, or rather I should say, has been substituted by the Board of Revenue for the khusrah or field by field measurement, as previously conducted by the surveyors, with what advantages time can only prove. But whether in Madras any preparatory definition or demarcation of the fields or ryotwarry holdings will be necessary or not, I of course am unable to say, but it appears to me obvious, that at all events the village boundary, which Captain Priestley lays down in a professional manner with the Theodolite, should be properly and authoritatively defined and freed from all disputes, and a sufficiently correct sketch of the same exhibiting the precise position and distance apart, of all the boundary marks (or *Thaks*) as existing on the ground, should be furnished under the settlement officer's signature, for the guidance of the surveyor and for due subsequent comparison with the professional plan. The present method of preparing these demarcation (or Thakbust) maps, is fully described in the Manual of Surveying (page 541 second edition.)

44th. The Madras Board of Revenue in endeavouring to estimate what an establishment should be, (paras. 52nd to 54th of their report) refer to the details given in the Manual for the civil branch of the operations. The estimate given in their 54th para. is that for the demarcation establishment in the lower provinces of Bengal, where, under the perpetual settlement, the duties of the settlement officer are confined simply to the demarcation and adjustment of boundaries including the measurement of the minor estates situated within, and subordinate to, the village, and the preparation of the registers of estates, for lodgment in the Zillah Collectory Office. The object of this survey and measurement being merely the ascertainment of the total area and position of every state paying revenue to Government, the definition of the fields composing an estate, as well as the details of cultivation, waste, fallow, &c., are deemed unnecessary, and no enquiries are consequently made on those heads. To keep the Professional Survey establishment in full work, all the energies of the settlement officer and his establishment of Deputy Collectors, Peshkars and Aumeens, are called into play ; and if this is the case where no settlement and assessment is in progress, it follows that the undivided attention of a civil functionary will be ab-

solutely required in the Madras surveys. By the Surveyor taking up the measurement of the Fields, the settlement officer will be enabled to do ample justice to the demarcation and settlement duties.

45th. I believe that the same distinction which existed in the old North West surveys between settlement and survey duties, will be found the most advantageous in Madras. The Surveyor to conduct, and be responsible for, all survey and measurement work, the settlement officer to guide the demarcations and the assessment duties, which latter include the ascertainment of the quality of the soil and crops, and likewise involve a check over the entries of the names of Proprietors, or Ryots, in the Aumeen's Khusrah or field Register. By such a division of labor and responsibility, the agreements by the people of a district are more likely to be readily obtained, and entered into without objections of a serious character. In the Punjab and N. W. Provinces as well as in Bengal in the present day, the Khusrah or Native Revenue measurements are all made under the superintendence of the Settlement officer; I am therefore unable to furnish any information or specimens regarding this portion of the Revenue operations, but I candidly confess that after nearly 20 years experience in the Department, I am no convert to the change, but on the contrary, every day tends to confirm me in the principles which I have endeavoured to lay down on this subject, in the manual of surveying.

46th. The objections taken to the results of the old North Western Provinces Khusrah, are, in my humble opinion, not from defects of system, or the principles, on which the system was based, but from absolute neglect of the first and leading steps of the system, whereby proper check and supervision over the combined work, was rendered impossible, by the haste with which the ground was got over as before adverted to. I therefore do not myself see sufficient cause for separating measurements, which should proceed simultaneously, or as nearly so as possible, under one professional head. A clear and unmistakeable distinction between the duties of the Professional and Revenue officers should I think be laid down from the first, and rigidly adhered to.

47th. The subject of permanent field marks is also one of great importance, and if they can be erected as the Board of Revenue propose at all triple junction boundaries of villages, of course, the advantage will be great, but I apprehend that the expense would be very great,

and the number of solid or masonry pillars required for each talook or Pergunnah would be so enormous, as to render it altogether prohibitory. Although I have always endeavoured to provide for as many permanent marks as possible, especially such as are more essential for survey purposes, and for the proper connection of the meridian between contiguous surveyors, yet the fixing of the triple junction points or divergence of three boundaries of villages as land marks has been found to be hopeless. With the exterior limits of Pergunnahs and districts even, there has been a difficulty on account of the constant changes occuring in these territorial sub-divisions.

48th. Should it be determined to carry out this plan it will be very necessary to enforce the proper maintenance of the pillars by the village authorities. For this, and other purposes of the survey generally a special enactment will be most advantageous. It appears to me greatly to be regretted that in Bengal where the expense of defining, adjudicating and surveying the village boundaries falls so heavy on the State, the results of the survey are not made more binding on Zemindars. The more stringent the law in this respect the greater will be the attention to proprietary rights at the time of survey, and consequently a more ready attendance and co-operation on the part of Zemindars or ryots, which is so necessary to due progress will be obtained.

49th. During the past four or five years the operations in Bengal have been going on with great speed and vigor, the annual Reports connected with both the Professional and Civil branches have been published by the Board of Revenue, and as there may be many details discussed therein which might be instructive to the Madras executive officers, I beg to append a bound copy as per margin.* The nature and extent of our operations in the lower provinces will be fully understood by a perusal of these reports.

Appendix. E.

* *Bengal Revenue Survey Professional and Civil operation Reports for the seasons* 1851-52, 1854-55 *in Duplicate.*

50th. A mass of information regarding the old Revenue surveys and settlement of the N. W. Provinces, as well as of the Bombay Presidency has been published in the Parliamentary blue book, 100 copies of which, I have been informed, have already been furnished to the Madras Government, it is not therefore necessary for me to attach copies

to this Report, and I would merely suggest a perusal of it to all the survey and settlement officers employed in the Madras Presidency.

51st. It has been stated in the Madras Government Resolution that a detailed Measurement of fields, will not be required of the whole area of the Presidency computed at 138,000 square miles, but only about 60,000 square miles of it, the rest being hilly jungly country of less value and importance, will, I presume, have to be taken up Topographically only; perhaps in some Districts, there will be found both descriptions of area to be dealt with (as is found to be the case in the operations now going on in the Saugor and Nerbudda territories) and which, in order to complete the Zillah map, will have to be provided for. The proper mode of surveying such ground is very elaborately described in the Printed Instructions by Lieutenant Colonel Waugh, Surveyor General of India, as per margin,* two copies of which I have the honor of furnishing for the use of the Madras surveyors, and would earnestly commend a careful study of the invaluable principles therein laid down to the Madras Surveyors. These instructions are likewise to be found in the manual of surveying Appendix page III. London Edition.

APPENDIX. G.

*"*Instructions for Topogrophical surveying by Lt. Colonel Waugh, Surveyor General of India, for the use of the survey Department.*"

52nd. In the Madras Government resolution (para. 44) it is questioned whether a Surveyor General, or a "Superintendent of Revenue Surveys" would be able to control more than four parties of the strength laid down. There would I imagine be no difficulty in his efficiently supervising a much larger number. At the present moment, I have no less than 14, all of the full strength with one exception as detailed in the margin,† under my immediate superintendence in addition to other important duties. But as before remarked the survey parties can only advantageously be increased gradually from year to year as each new party grows in strength and capability, and may thus subsequently be able to afford to spare a few well trained hands to form the nucleus of an additional establishment to take up another Dis-

† *Bengal*.........	5
N. W. Provinces...	5
Punjab and Sindh.	4
Total...	14

trict. The present establishment, on this side of India have all risen in this manner. During a period of the past ten years four parties have thus expanded into 14. I would however on no account recommend more than four establishments being raised in the first instance.

53rd. I observe in the same para. of the Resolution mentioned above, that it is proposed to give the executive officers employed, the appellation of "Deputy Surveyor General." In this Presidency they are styled "Revenue Surveyors" which appears more in consonance with their executive duties, and less likely to cause misunderstanding in contradistinction to the general supervising authority, who has long been termed Deputy Surveyor General in Bengal.

54th. In conclusion, I have only to record my earnest desire to afford at all times the most hearty co-operation and assistance, as far as lies in my humble power, towards the object which the Madras Government have in contemplation, and if the Superintendent of the Surveys whenever such an officer may be appointed, will place himself in communication with this office, he will find a ready and cheerful response on all points of professional procedure, and I shall feel a pleasure and a pride, if by any means I can be made instrumental towards raising the character of the Madras surveys to that standard of excellence, which should characterise so great a work in the present age.

(True Copy.)

(Signed) R. B. CHAPMAN,

Offg. Under Secy., to the Govt. of India.

LIST OF ENCLOSURES.

1. Appendix A. Test of examination for candidates in duplicate, referred to in para. 12.
2. Do. B. Copy of pay abstract referred to in para. 14 in duplicate.
3. Do. C. Scale of Instruments for Bengal survey referred to in para. 35.
4. Do. D. 8 Specimens of Bengal survey Maps, referred to in para. 36.
5. Do. E. 4. Specimens of Bengal (Punjab) Maps in duplicate referred to in para. 38.
6. Do. F. Bengal survey operation report in duplicate, referred to in para. 49

7. Appendix G. Colonel Waugh's "Topographical Instructions" in duplicate referred to in para. 51.

REV. SURVEYOR GENL.'S OFFICE, [illegible] M[illegible], 18[illegible]7. (Signed) H. L. THUILLIER, *Deputy Surveyor General.*

ENCLOSURE A.

Memorandum of Test for Examination of Candidates for the Great Trigonometrical and Revenue survey Departments.

1. To write a neat legible hand.
2. A thorough knowledge of Arithmetic, but more especially of Involution, Square and Cube roots, Arithmetical and Geometrical progression, Proportion or Rule of three, Vulgar and Decimal fractions, and Logarithmic calculations.
3. Geometry, first 4 books of Euclid.
4. Algebra, as far as Quadratics inclusive.
5. Elements of Plane Trigonometry.
6. Spherical Trigonometry.
7. A knowledge of Plan Drawing, or at least a proof of some degree of taste in Drawing and Printing, so as to warrant the expectation that he may turn out a good Draftsman.
8. A healthy and vigorous constitution, and good eye-sight for observing.

Form of Agreement to be taken from a Candidate prior to his admission into the Survey Department.

I. A. B. do hereby agree, that I will not demand my discharge for three years from the date of joining the survey to which I am appointed, and never during the field season. I further agree to serve in any one of the surveys to which it may be necessary to remove me.

If against the tenor of this agreement my discharge should at any time be insisted on, I do hereby agree to repay to the Government a sum equal to one half of the whole amount which I may have actually received in the shape of salary or allowance of any kind.

E. F.
C. D. } Witnesses.

Place and date. Signature.

NOTE.—This test is applicable to both Departments, with the exception of Spherical Trigonometry which is not required from the Revenue survey Candidates.

(Signed) H. L. THUILLIER, Captain, *Deputy Surveyor General.*

B.

Detailed Statement of Native Establishment attached to the Revenue Survey of Saugor or Western Division for the month of March 1857.

No.	Description.	Monthly pay of each. Rs.	A.	P.	Total of each class. Rs.	A.	P.	Total professional expense. Rs.	A.	P.
1	Native Surveyor Totaram, ...	42	...	...	42	...	...			
	" Bhowaneedeen, ...	35	...	...	35	...	...			
	" Bahareelall, ...	34	...	...	34	...	...			
	" Reazaul Hoaussein, ...	33	...	...	33	...	...			
5	" Sabit Allee, ...	32	...	...	32	...	...			
	" Doorgapersaud, ...	30	...	...	30	...	...			
	" Fussee Oldeen, ...	25	...	...	25	...	...			
	" Nuthoo Lall, ...	23	...	...	23	...	...			
	" Koor Sein, ...	22	...	...	22	...	...			
10	" Dhowkul Singh, ...	21	...	...	21	...	...			
	" Sewchurn Lall, ...	20	...	...						
	" Prauglall, ...	20	...	...						
					40	...	...			
	" Gungaram, ...	18	...	...						
	" Hayut Allee, ...	18	...	...						
15	" Khoodabux, ...	18	...	...						
					54	...	...			
	" Ghoolaum Hossein,...	15	...	...	15					
	" Sewchurn Persaud Sookl,... ...	13	...	...						
	" Debee Dutt, ...	13	...	...						
					26					
	" Mindaeelall.	12	...	...						
20	" Rampersaud, ...	12	...	...						
					24	...	...			
	" Ramchurn on leave 16th Feb. 1857									
	" Futtuhchund, ...	12	...	...						
	" Bhugwanchurn, ...	12	...	...						
	" Koor Bahadoor, ...	12	...	...						
					36	...	...			
25	" Abdool Humeed, ...	10	...	...						
	" Jhoomunlall, ...	10	...	...						
	" Jogulkishore, ...	10	...	...						
	" Hunwunt Singh, ...	10	...	...						
	" Ameer Allee, ...	10	...	...						
30	" Gunga Singh, ...	10	...	...						
					60	...	...			
	" Rambhujunlall, ...	8	...	...	8	...	...			
	" Mooktapersaud, ...	7	...	...						
	" Raj Bahadoor, ...	7	...	.						
34	" Huzareelall entertained, 1st March 1857, ...	7	...	...						
					21	...	...			
1	Native Doctor Shaik Abdool Ruheeman, ...	25	...	...	25	...	...	606	...	...

B.

Detailed Statement of Native Establishment. *(Continued.)*

No.	Description.	Monthly pay of each. Rs.	A.	P.	Total of each class. Rs.	A.	P.	Total professional expense. Rs.	A.	P.
	Measurers.									
1	Jemadar, ...	12	...		12	...	...			
2	Tindals, ...	7	...	...	14	...	...			
22	Do.	6	..	...	132	...	...			
28	Mates, ...	5	...	...	140	...	...			
33	Classies, ...	4	8	...	148	8	...			
178	Do.	4	..	...	712	...	...	1,158	8	...
	"Broken periods."									
1	Mate for 25 days, ...	5	...	...	4	...	6			
1	Classie 3 ,, ...	4	...	...	....	6	2			
1	Do. 16 ,, ...	4	...	...	2	1	...			
1	Do. 20 ,, ...	4	...	...	2	9	3			
1	Do. 26 ,, ...	4	...	...	3	5	8	12	6	7
	"Non-effective since last muster."									
1	Native Surveyor Ramchunder No. 32 of last muster deserted.									
	Total drawn in Abstract for Native Establishment—Company's Rs..							1,776	14	7

I do declare upon my honor that the above is a correct Statement of the different classes of Native Surveyors, Measurers, &c., attached to my Survey and of their respective pay as due for the month of March 1857.

REVENUE SURVEYOR'S OFFICE,
Saugor or Western Division,
Saugor,
The 1st of April, 1857.

(Signed) J. W. B. BLAGRAVE, Captain,
74th Regt. N. I., Rev. Survr.

(Signed) H. L. THUILLIER,
Deputy Surveyor General.

B.

Abstract of the Salaries and Establishment attached to the Revenue Survey of Saugor or Western Division for the month of March 1857.

No.	Names.	Rs.	A.	P.	Total of each: Rs.	A.	P.	Total of each class. Rs.	A.	P.
1	Captain J. W. B. Blagrave, Revenue Surveyor,...........	526	...	...						
	Ditto. Ditto. Contingent allowance,....................	200	...	...	726	...	...			
								726	...	...
1	Lieut. E. H. Willoughby, Asst. Rev. Surveyor,..............	250	...	...	250	...	...			
2	Mr. W. A. Wilson Do. Do.	250	...	...	250	...	...			
3	Mr. J. J. Burrowes, Sub-Asst. Rev. Survr. 1st Class,........	200	...	...	200	...	...			
4	Mr. W. Vyall, Do. Do. 2d Class,........................	150	...	...	150	...	...			
5	Mr. A. F. Bonny, Office Asst.	85	...	...	85	...	...			
6	Mr. G. Bonny. Ditto.	85	...	...	85	...	...	1,020	...	...
	Native Establishment,..........	...	...	...	......	...	...	1,776	14	7
	"Guard."									
19	Burkundazes,......................	5	...	...	95	...	...			
	Non-effective since last muster.							95	...	...
1	Mr. C. A. Montgomery, Sub-Assistant Revenue Surveyor 4th Class, Struck off.									
	Grand Total of Company's Rupees three thousand six hundred and seventeen, fourteen annas and seven pie....							3,617	14	7

I do hereby certify that the above Establishment was effective during the month of March 1857, and that the charge above made for the Native Establishment, was actually and necessarily incurred on that head during the said month.

REVENUE SURVEYOR'S OFFICE,
Saugor or Western Division,
Saugor,
The 1st of April, 1857.

(Signed) J. W. B. BLAGRAVE,
Capt. 74th Regt. N. I., Rev. Survr.

Received Payment.

(Signed) J. W. B. BLAGRAVE,
Capt. 74th Regt. N. I., Rev. Survr.

Passed for Company's Rupees 3,617-14-7.

(Signed) H. L. THUILLIER,
Deputy Surveyor General.

C.

Estimated scale of Instruments, Camp Equipage, Books, and Office Furniture as in use with the Bengal Revenue Survey Establishments, Full Strength.

Names of Instruments.	No. of each.
Chains Gunter's Iron with Arrows,......	55
Chains Khusrah Iron for Native detail Measurement, ...	100
Compasses Beam Wooden,.	2
Ditto. Proportional brass pairs	4
Ditto. Large with pen and pencil legs brass pairs, ...	18
Ditto. Small brass pairs,.	30
Ditto. Bow Brass,.	20
Ditto. Surveying, or Prismatic with Tripod stands, ...	16
Circumferenters	6
Cross Staves, ...	10
Color Boxes,.	2
Artificial Horizon, ...	1
Barometer Mountain..	1
Bars steel graduated 11 feet engraved and divided into feet, inches and tenths for comparing Gunter's Chains	4
Drawing Pens,.	40
Drawing Pins for fastening Maps to Boards,....	100
Flag staves,.	50
Gunter's scales 2 feet Brass, ...	2
Hammers for Chainmen,.	12
Mathematical Instruments including proportional compasses in cases,.	6
Magnet Bars in box, ...	1
Magnifying Glass, ...	2
Pentagraphs,....	2
Protractors brass rectangular,.....	40
Ditto. Ivory Ditto.	6
Perambulators, Everest or Waugh's pattern,....	2
Referring lamps with sight vane and plummet,....	1
Rings spare for Chains,.....	200
Rules Brass Flat 3½ feet heavy,.....	2
Ditto. .... ditto 2½ feet,....	1
Ditto. Ebony Flat 3 feet or 4 feet,.	3
Ditto. Parallel 18 Inches brass on rollers......	4
Ditto. ditto. 12 Inches brass on rollers...	6
Ditto. ditto. 2 feet Ebony with Bars,.	4
Ditto. ditto. 1 foot ditto.	12
Ditto. ditto. 6 Inches ditto.	12
Tapes measuring	4
Telescopes reconnoitering,...	2

C.

Estimated scale of Instruments, &c. (Continued.)

Names of Instruments.	No. of each.
Theodolites 12 Inches Diameter. By Troughton and Simms, Colonel Everest's pattern Telescope to range to 40° of altitude. The Telescope should be of 20 Inches, focal length 1·6 inches clear aperture with 2 eye pieces, powers 20 and 40, 2 Colored Glasses, verniers 3 to the Azimuth and 2 to the vertical circle. Levels 2 reading to about 3" graduation on silver to 10' and verniers to 10 to pack in 2 Boxes exclusive of Tripod stand,.....	1 } 19
Theodolites 7 Inches Diameter Everest's pattern by Throughton and Simms,.....	3
Ditto. 6 Ditto. Ditto. Ditto.	4
Ditto. 5 Ditto. Ditto. Ditto.	11
Tracing Glass,.....	2
Thermometers,..	1
Sextant in box,.....	1
Drawing Boards and T Rules,.	25
Heliotropes for Hilly country and Minor Triangulation,...	4
Plane Tables for Hilly country and Minor Triangulation,...	10
Camp Equipage.	
Tents Hill or Staff Serjeants Lined with Chinty,..........	4
Ditto. Office double poled large Ditto................	1
Ditto. Ditto single poled Captain's Ditto................	1
Ditto. Sepoy's of 4 Pauls each,..............................	4
Pawlins waxed cart,..	8
Books.	
Logarithm (Chamber's, Young's or LaLande's),............	1
Instructions on Topographical survey by Colonel Waugh,	1
Mathematical Tables Hutton's,..............................	4
Manual of Surveying,..	1
Nautical Almanac for the current year,.....................	1
Traverse Tables by Colonel Boileau,........................	9
Table of Trigonometrical survey Computations,...........	1
Tables of Land Measure,.....................................	1
Pay and Audit Regulation Code of 1845,....................	1
Multiplication Tables by Major Smith,.......................	6
Office Furniture.	
Toon or Teak-wood Tables of sizes,.........................	6
Chairs,..	12
Large and small Boxes for Office Stationery and Records,	8
Office Stamp (brass),..	1
Chupprases, Belts, &c.,.......................................	16
Office Stools,...	20

REV. SURVEYOR GENL.'S OFFICE,
Calcutta, 6th May, 1857.

(Signed) H. L. THUILLIER,
Deputy Surveyor General.

Extract from the Minutes of Consultation, dated 25th July, 1857.

No. 741.

Ordered to be referred to the Board of Revenue for consideration.

(Signed) H. FORBES,
Acting Secretary to Government.

Extract from the Proceedings of the Board of Revenue, dated 15th July 1857, No. 2400.

Read Extract from the Minutes of Consultation dated 22d April 1857, Revenue Department.

(Here enter No. 372.)

In the Extract Minutes Consultation of 22d April 1857, the Government direct the attention of the Board of Revenue to certain paras. of the Honorable Court's despatch of 17th December 1856, on the proposed scheme of a revised survey and assessment for the Madras Presidency, in order to their considering the subjects discussed in certain paras. in connection with a Minute by the Honorable Mr. Grant.

2. The paras. of the despatch to which Government seem to refer, are the following.

3. 1. Para. 13. The Court suggest a *water rate* on all irrigated land, independent of its assessment as unirrigated instead of the present (and proposed) plan of classifying and assessing lands as either "Irrigated" or "Unirrigated."

II. Paras. 15-20. The Court object to an assessment founded on a per centage of the *Gross* produce.

III. Paras. 21-22. The Court object to a periodical revision of the assessment with reference to fluctuations in the price of grain, and consider that it should be fixed for 30 years.

IV. Paras. 23-27 The Court, with reference to the vast number of minute holdings by individual ryots, suggest the introduction of the Bombay system of "Survey fields" whereby several adjacent occupiers of small fields, are considered co-sharers of one large field.

V. Paras. 28, 29, 30. The Court desire that their previous instructions regarding "Meerassee" tenure be not departed from.

VI. Paras. 31-34. The Court object to the plan for securing "permanent occupancy" by allowing a reduction of assessment to ryots agreeing to take up large holdings for a term of years.

VII. Para. 44. The Court consider that the suggestions in the Honorable Mr. Grant's Minute referring to the system of assessment in Cuttack should receive careful consideration.

4. The Board will now, in pursuance of the wish of Government, proceed to offer their observations, as briefly as the subject will admit, on the above points. They would however in the first place beg the consideration of Government to the fact that, questions of this nature have been for many years constantly brought before Government and the chief Revenue officers, without the possiblity of their being decided in a manner that shall not admit of farther discussion. What may be the opinion of the Government or of the Board of Revenue one year may be quite at variance with the views expressed by the same authorities another year, in consequence of those changes in office which cause official opinions to be in fact the opinion of individuals, who in matters of this kind will seldom be unanimous. Even among the most experienced and careful this great contrariety exists, for proof of which the Board need only refer to the Minutes, and the official letters printed with the Extract Minutes Consultation of 14th August 1855. It is therefore with deference that the Board of Revenue, as at present constituted, submit their views on the points in discussion, and if they should appear to have omitted the consideration of any disputed point, it is because they desire to present to Government only such views as they can generally agree upon, without extending their proceedings by discussion on those few details in which they are not agreed, and which after all had in their unanimous opinion better be left to the officer whom the Government shall think fit to entrust with the sole management of the important duty of revising the survey and assessment of the Presidency.

5. With reference to para. 3 of these Proceedings, it will be seen that the first question is in regard to the *water rate*. The Court consider it worthy of consideration whether the " distinctive classification " of lands according as they are or are not capable of irrigation from a " Government source, should not be abolished, and all land classified " simply with reference to its soil and its productiveness *without irrigation*, a *water rate* being charged when Government water is used." The Court observe that this practice prevails in the N. W. Provinces, and that the Madras Government have expressed an opinion that it might be done without inconvenience.

6. The Board, as far as their judgment and experience go, are unable to concur in the opinion that the plan adverted to by the Court could be adopted without inconvenience, and they consider the present system so well known and assented to by the ryots to be the best. The case of the N. W. Provinces is very different from Madras. There the assessment is fixed on the whole village with reference chiefly to what it had usually paid before. A new and most comprehensive system of irrigation by canals was then commencing, and the mode of supplying water, in all its details was entrusted to the Engineer Department, who in consequence of the mechanical arrangements they were able to make, could tell how many cubic feet were supplied to each village. In this Presidency, we have to make an undeviating assessment on each *field*, and even under such a perfect system of irrigation as has been opened out in the N. W. Provinces, the Board doubt if the officers of Government could register the water supplied to each field. Much greater would be the difficulty in a country the irrigation of which depends on numberless small tanks, the supply of water from which is exceedingly variable and uncertain. It is possible that in some localities such as the channels supplied by the Coleroon and Godavery Annicuts, a uniform water rate per acre (without reference to the cubic feet supplied) might be introduced, but even then it would necessitate constant interference of the petty revenue officers who would have to be always on inspection to see what fields had taken water, for under the system proposed by the Court the Board presume that the water rate would not be levied unless water were actually taken from the Government source. Again, where a village is assessed 'en gros' as in the N. W. Provinces, and a complete Hydraulic system exists, it is easy to fix a sum to be paid extra for the supply of so many thousand cubic feet of water; but in Kahétwar (or field) settlement each field would have to be assessed first as an unirrigated field; and then an uniform water rate, even if no notice were taken of the quantity of water used, would often press unfairly, and vitiate all the labour of the primary assessment. It would constantly happen that lands in different classes, and therefore bearing different rates of primary assessment would produce much about the same when irrigated. It does not at all follow that a field of an inferior class of soil would retain that inferiority with regard to another, when both were irrigated. To carry out the principle therefore of equable assessment under all circumstances, it would be necessary to assess every field twice over; once with reference to its class as unirrigated land, and

secondly with reference to its relative capability when irrigated,* in order that with its water rate added (irrespective of the quantity of water used) it might be on a par with other lands inferior to it when unirrigated, but equal or superior when irrigated. The Board consider a Khétwar assessment sufficiently laborious and liable to error, without farther complicating the process ; nor do they comprehend what advantage is to be gained by a water rate in the sense it appears to be used in the N. W. Provinces, and by the Court of Directors, unless the Hydraulic arrangements are such, that the quantity of water supplied to each field can be ascertained. The term water rate, has been applied in Madras to denote the extra assessment levied on lands originally assessed at a low rate as unirrigated, but which occasionally are able to take advantage of water from a Government source. A water rate in this sense appears reasonable, but where lands are *constantly* irrigated, the Board prefer a short series of rates on "irrigated land" as distinct from the series on "unirrigated land."

* *When land has never yet been irrigated, it would be mere guess work to fix an assessment with reference to its productive powers in the event of its being irrigated at some future time.*

7. The next point to be considered is the observation of the Court on the proposition that 30 per cent. of the *gross* produce should be taken as the maximum Government demand. The Court consider this part of the scheme as the one most open to objection, and inconsistent with the principle that the right of Government is only to a share of the *rent*. They remark that such a plan would be to favor the most fertile lands which might probably pag much more than 30 per cent. of the gross produce, whilst 30 per cent. of the gross produce of inferior soils would leave the ryot little or no profit at all. They are of opinion that the assessment should be proportioned to the *net* and not to the *gross* produce, and state that this course was followed in the N. W. Provinces, where the net produce was estimated, and two-thirds of that taken as the Government share.

8. The Board are not disposed to deny that the views expressed by the Court are correct in theory, but they at the same time believe that to carry them out would not be practicable in a Khétwar settlement. In the N. W. Provinces the settlement officer after discussing the

subject with this employés and with the head ryots, the representatives of the villagers, fixed at their discretion what they considered the *net* rent of the whole village. On what data they went is not explained in any of the printed reports, but it seems at best to have been but an approximation, and this might be possible taking a whole village by itself; but to attempt to estimate the net rent derived from each field must in the Board's opinion be futile. They doubt if there is a nearer plan than that of estimating for a considerable tract of country the average expenses of cultivation at so much per acre, and with these data making a per centage reduction from the estimated *gross* produce, considering the remainder as the net produce. That the gross produce of every field or rather of each class of land must be estimated first, is very clear, or else no classification could be made. This task is far from easy at the best, but to attempt field by field to estimate the *net* profit derived from it would be altogether impracticable, especially when it is well known that any ryot when pressed to give a statement of his cultivating expenses, always arrives at the conclusion that he is a loser on every acre. In estimating the relative values of fields, the Board would invest the settlement officer with very full powers. None but those employed on the spot in personal investigations can presume to lay down detailed and inflexible rules, and it is not to be expected that the assessment eventually fixed on any field will be exactly a proportion either of the *gross* or the *net* produce, as there is a vast variety of local circumstances to cause variation from what may be taken as the primary data. The Government have already stated that they consider the share of Government should *not exceed* 30 per cent. of the gross produce, and they expect that this will be about two thirds of the net produce. This should be a sufficient guide for the settlement officer, whether he makes his original calculations on the gross or the net. The Board greatly doubt if the settlement officers of the N. W. Provinces could have attempted to apportion the two-thirds net produce on *every field*, and from the very earliest periods of history the ryots of the Carnatic have been accustomed to, and understand the system of yielding to Government a certain per centage of the gross produce, leaving it to the assessing authority to make this per centage lighter on the inferior soils; a plan which in practice would seem to meet the objections of the Court, that the better soils would be favoured.

9. The next subject (para. 3 of these Proceedings) is that of the

term or period during which the assessment should remain unaltered. The Court object to the proposition of Government that the assessment should be fixed in terms of so much grain, that converted into money at the average prices of the last 7 years, and this price to remain fixed for 7 years, and then revised again : also that the *grain* estimate be revised every 50 years. The Court prefer that the rates of assessment should be fixed so low as to cover all ordinary fluctuations of price and that these rates should as in Bombay remain permanent for 30 years.

10. Where the land of a country is classified field by field with reference to the amount of staple grain it produces, and the assessment fixed almost entirely with reference to those classes, it seems but reasonable when great fluctuations occur in the basis on which the assessment is made (i. e. on the value of the produce) that a corresponding alteration should be made in the rates of assessment. The Board however must acknowledge that there are practical difficulties in the way which cannot be overcome. In the first place, if a reduction is to be made when the price of grain falls, an enhancement must be made when the price rises, and this would cause very great dissatisfaction among the ryots. It is also to be remembered that we have not the means in this country for ascertaining the real prices of grain with sufficient accuracy for the important process of revising the assessment periodically. The plan proposed by the Government seems to have been taken from the plan pursued in England under the Act for the commutation of tithes, but it was found so difficult to put a grain valuation on each field that by a later Act this is not required, and the farmers fix among themselves, for sanction by the Commissioner what each shall pay so as to make up the average total tithe. The Registers no longer shew the grain produce of each field, but simply its tithe charge in money when first settled, and this subsequently varies, as prices vary from the standard prices originally decided on by Government. It is also to be remembered that the tithe charge is but a small payment in comparison with an Indian land assessment, and it is not a matter of much consequence to know the produce of a field very exactly.

11. It will be in the recollection of Government that 3 or 4 years ago there was a general demand for reduction of assessment, on the plea that prices had fallen to a serious extent since the original assessment was fixed. Though there was no doubt of a great fall in price, it was found almost impossible to trust to the various statements of prices past

and present, submitted from the Provinces, and though Government were disposed to make reductions, and did do so on other grounds, yet before it could really be determined what actual prices were, they again rose, and the original ground for complaint disappeared.

12. The Board therefore are inclined to urge the adoption of the plan approved of by the Court, and to make the assessment when once fixed, unalterable for 30 years.

13. It may not here be out place to notice that a general opinion prevails in England that the Bombay Settlement for 30 years secures a far greater permanency of tenure to the landholder, than the present ryotwary tenure of Madras. This is altogether an error, for a Madars ryot is able to retain his land in *perpetuity* without any increase of assessment, as long as he continues to fulfil his engagements.

14. The next subject is that of the evils arising from the present system of minute holdings, and pauper ryots, arising from the practice of equal partition of property among heirs, and the facility given by Government to the acquisition of small plots of land by persons of no capital or means. The Court consider that the rule introduced in Bombay at the time of the new Survey of that Presidency, might, in prinple at least, be carried into effect at Madras, and they do not admit the force of the objections made by this Government in para. 25 of the Extract Minutes Consultation of 14th August 1855. The rule in Bombay, the Board believe to be as follows: During the Survey several small fields were clubbed together, and constituted a "Revenue field," without any consideration as to whether the occupiers of these small fields were different parties or not. In the event of one of the small fields becoming vacant, some one, or all jointly, of the "Revenue field" were obliged to take up the vacant portion, or be rejected from their own. The size of the "Revenue field" was to be not less than 12 acres of unirrigated, or 4 acres of irrigated land.

15. The Board are not in a position to give any opinion as to the extent to which these rules have been carried out in Bombay, or how far they have been the cause of discontent, but with the most anxious desire to introduce a system of large holdings, they cannot see the justice of forcing any man to take up more land than he requires, and they believe that in the Madras Presidency such a rule would give rise

to serious opposition. From what the Board have seen of the Bombay village maps, it appears that the usual size of the fields were already above that specified as the minimum for a revenue field, and therefore in practice there may have been little inconvenience,* but in Madras, where there is a much larger extent of irrigated land, comparatively valuable, and yet generally split up into fields of less than an acre, the effect of an arbitrary rule of the nature above referred to, would be to affect the value of the land of every respectable ryot. It is is true that the Madras Government might make the minimum very much less than in Bombay, but this would then hardly meet the object in view, and still give rise to constant complaint.

* *Mr. Commissioner Townshend states that the Bombay rule would only apply in a "few cases" in his district.*

16. As far as the operation of *Surveying* is concerned, it may be a saving of time and expense to survey and compute the area of a small tract, containing several minute fields, but the areas of these must still be marked out, though by a rougher process, and this the Board have already proposed, and Government sanctioned, the minimum being 2 acres for unirrigated, and 1 acre for irrigated. Still the interior subdivisions are separate fields in a revenue point of view, and the Board very much doubt whether as the law now stands, if a ryot should sue the Revenue authorities for compensation, for having ejected him because he refused to take the land of a deceased neighbour, they would not be cast.

17. In the judgment therefore of the Board, the principle laid down by Government in para. 26 of the Extract Minutes Consultation of 14th August 1855 is best adapted to meet the object in view as regards the Madras Presidency that, "it is better to trust to the indirect operation of wholesome rules, and an improved system, than to attempt to apply any direct remedy." The rules which the Court propose in the latter part of para. 26 of their Despatch of 17th December 1856 will, in the opinion of the Board, go far to introduce a change as regards pauper occupations without interfering with the rights of existing occupants. These rules are, I. Persons desirous of engaging for fresh land will not be permitted to take it except in a

Enclosure in from Government 22d April 1857, *No.* 372, *Rev. Dept.*

quantity comprising not less than a certain area hereafter to be determined on. II. Occupants of petty holdings when they fall into arrear, shall not be allowed to renew their puttahs. III. No ryot desirous of contracting his cultivation shall be allowed to give up so much as would bring his holding within the prescribed limit.

18. The Board are not prepared to state positively what should be the minimum holding, but they would suggest that it be decided with reference to the money amount of the puttah rather than that of the extent of land, and they would in the first instance make the rule as light as possible. At present more than half the puttahs in the Presidency are for sums under 10 Rs. a year, and the Board think that in future the object should be to have no puttahs under 10 Rupees. They think that in the new Survey, when tracts of land long waste are measured, no attempt should be made to re-trace the old boundary marks of small fields, but that new portions should be set out, not less than say 4 acres of unirrigated and 1 acre of irrigated. This is considerably above the average size of fields in the Carnatic. No field however large when once defined in the survey *Map* should be hereafter sub-divided, though in making the Survey it would be at the discretion of the settlement officer to allow very large fields to be sub-divided and mapped accordingly.

19. It will be necessary when the time comes to put into force some of the above rules to define what amounts to a "relinquishment" of land, and the Board think that a ryot who has held a particular field for 3 years consecutively should be allowed to leave it fallow or waste for a 4th year without liability for revenue.

20. With reference to the discussions on this subject, the Board would remark that it is not so much the small size of the *fields*, as the small amount of the *puttahs* that complicate and enfeeble a ryotwar system of revenue. No doubt as far as regards the mechanical operation of surveying, the minute separate plots of land give rise to great loss of time, labour, and money, but if a ryot holds 50 different fields of ½ acre each, and pays 40 Rupees a year to Government, there is not much object (as regards the revenue operation) in altering the *size* of those fields.* If the Bombay rule were carried into effect, it might so happen that a ryot hold-

* *In the District of Malabar the separate holdings or gardens are very small, yet still the occupant of one of these is in a respectable position as a ryot and landholder, on account of their value.*

ing a dozen small fields in different parts of the village, might find himself fettered by as many coparcenary obligations, each of his separate fields being perhaps included as a portion of a "*Revenue* field." The grouping together of small fields into a "*Survey* field" (which means nothing more than that the area of the whole is accurately determined, but its component small subdivisions more roughly) would not affect such a ryot's tenure at all.

21. The Board are also of opinion that a maximum as well as a minimum should be fixed for a "Survey-field," as if fields are set out of a very large size it is a hindrance to a careful extension of cultivation.

22. In paras. 28, 29, 30 of their despatch the Court observe that the Government appear to deal with the subject of "Meerassee" in a manner at variance with the practice which has hitherto prevailed. The Court were no doubt under the impression, that in the new scheme for Survey and Assessment, the Government intended to acknowledge the claims of the so called Meerassidars in districts where since our acquisition of the country these rights have been merely nominal, and to give up to them the disposed of the waste land in their villages. The Government certainly speak in para. 27 of the Extract Minutes Consultation of 14th August 1855 of "individuals and classes *exclusively* entitled by the ancient custom of the country to the occupation of the soil, and look for the time when the rightful holders will occupy it themselves, sub-letting it, or part of it, and no longer quietly submitting to its being given away to those who have no rightful interest in it." The views of Government regarding Meerassee were also so interpreted by the Board, in reference to other correspondence, and they have fully recorded their opinions in their Proceedings of the 14th May 1856, which the Government took into consideration in the Extract Minutes Consultation of 23d January 1857. The Board are still disposed to adhere to the views of Sir T. Munro (in his Minute of 31st December 1824,) regarding Meerassee in preference to those of Mr. Ellis, and they cannot but think they had reason to apprehend an undue extension of what are supposed to be Meerassee villages, when the Government in Extract Minutes Consultation of 8th March 1856, objected to the usual and well known system of receiving Durkhasts for waste lands, and condemning it as an interference, desired that the villagers should be left to make their own arrangements as to the disposal of the waste. It was also the deliberate opinion of the Advocate General (Board's

Proceedings 29th April 1856, No. 1271) that the Government had officially declared their adherence to Mr. Ellis' views on Meerassee, and that in any question before the Supreme Court, they could not attempt to oust a so called Meerassidar who surreptitiously obtained possession of waste land. The Board trust that as regards the provinces the question is now so far set at rest by the decision of the Court of Directors as to guide the Revenue officers, and that when the old residents of a village whether they call themselves Meerassidars or not, decline to cultivate (or else pay for) waste land, the usual puttahs may be given to Durkhastdars without forcing them to become sub-tenants of the old residents, and that the influence which the so called Meerassidars have hitherto exercised in keeping much land out of the occupation of others though not occupying it themselves, may be put an end to.

23. The next subject for consideration is that of adopting measures to introduce a more permanent occupancy of the land. The Government propose to make all the present Puttahs permanent for so long as the ryot shall not desire to contract or increase his holding, and to allow ryots who are willing to take up holdings of considerable size to compound for a term of years at a lower rate than the standard, regulated by certain fixed rules as to deductions for waste, for fallow, for bad seasons, &c. The Government also propose that where villages are still held in *shares* by Meerassidars, (though nominally ryotwar) that these shares may be recognized, and village rents made for a term of years.

24. The Court do not notice the last proposition, but object to the second, on the ground that if the assessment is made moderately low, and of course with reference to an average of good and bad seasons, there seem no necessity for lowering it still farther to induce ryots to cultivate; and they apprehend that such a premium as an abatement would lead ryots to enter on these favourable engagements, and keep to them only so long as seasons were favourable. In these views the Board concur, and though they would wish to see an increase of large holdings, they would prefer to look for them as the result of moderate assessments and a gradual increase of agricultural prosperity, than as the sudden effects of an artificial stimulus. It would also be next to impossible to draw up defined rules as to waste, fallow, bad seasons, &c., in such a manner as to meet all exigencies.

25. The Board observe that the Court approve of the Puttah being permanent, though perhaps the term permanent expresses too

much. Hitherto the Puttah has been merely a *bill made out* at the end of the season of the revenue demand upon the ryot, charging him with what land he has agreed to take up at the commencement of the season, and *deducting* for land unavoidably left waste, for land washed away, sometimes for withered crops, and other difficulties he has had to contend with; and *adding* where he has made use of Government water for irrigation on land not assessed with water tax. This account is presented to each ryot in attendance at the yearly settlement, and any objections he may have to make are investigated. In very many cases the ryot is content to receive his Puttah as it stands, and year after year cultivates the same land, on the same terms. It has been the wish of the Board of Revenue (and the Government have authorised it) that in these cases the attendance of the ryot may be dispensed with, and the Puttah simply *endorsed* year after year. It is therefore so far permanent; but if the ryot wishes to contract his holding he may do so under a ryotwary settlement, and the assessment on the land given up, is deducted. Also if he claims and obtains some alteration in the puttah in the way of remission in exceptional cases, the paper is altered. In this sense therefore the puttah is *not* permanent, and to make it so, would be actually a hardship to the ryot, instead of a benefit. If the ryotwary system is open to the objection of *interference* with the people, it is in this case an interference much more for the convenience of the ryot than that of the Revenue authorities, as would soon be apparent if a puttah were in the full sense of the word permanent. As the system now stands a ryot may take as much or as little land as he likes, and having a puttah, and paying his dues, he never can be ejected.

26. With respect to the proposition of Government to authorize *village rents* with the Meerassidars, or headmen of the village, the Court offer no opinion. The general objection on the part of the Board of Revenue is that it gives a favoured portion of the village community a power of oppression over the week, and is apt to discourage individual and independent exertion. Yet in those cases where certain known parties have for years actually paid the village assessment, though the names of their dependants have been entered in the joint rent, as a matter of form there might be an opening for a village rent for a term of years which would be productive of good, but these are details for consideration which would be out of place in the present Proceedings.

27. The last point for consideration is as regards the suggestions contained in the Honorable Mr. Grant's Minute, as regards the agency

through which the Government demand upon the ryots is to be realized. Mr. Grant proposes that the villagers should nominate annually one or more persons through whom their payments should be made, on certain fixed dates, and thus "restrict the necessity of interference on the part of the Tahsildar with the private affairs of the cultivator." The Board cannot but think Mr. Grant has been misinformed as to the agency employed in the Madras Presidency. It is not the duty of a Tahsildar and his people to enter villages for the purpose of making collections of Revenue. The fact is that there is in every village a headman, under the name of Potail, Monigar, Mocuddim, &c., holding land of his own, who is recognized by Regulation IV. of 1816 as "the person who collects the revenue." It is to him that the ryots pay their instalments when due and he remits the money to the Tahsildar's Cutcherry. The Tahsildar does not interfere unless there occurs some special difficulty, or process to be gone through for the recovery of arrears.

28. Mr. Grant seems however to consider the Cuttack system as one that affords security against the interference and extortion of the Native Revenue Officers, and suggests its introduction in the Northern Circars. This system as explained by the Honorable Mr. Elliot, in his Minute appended to the Extract Minutes Consultation of 14th August 1855, is shortly as follows: The assessment is fixed on the fields, and the settlement is called ryotwar. Each ryot receives a Puttah for 25 or 30 years,* and the realization of the whole village revenue is committed to 4 or 5 headmen (or rather what corresponds to the Carnatic Curnum) called Surberakars, who engage to make good the whole revenue of the village on receiving a commission of 15 or 20 per cent. They are also allowed to avail themselves of whatever profit they can make out of the waste land.

* *It is not stated if the ryot is bound to pay the whole amount of his Puttah even should he be unable to cultivate the land described in it.*

29. It appears to the Board that these Surberakars of Cuttack are not merely an agency for collection of revenue, but to all intents and purposes, renters of the village, and it will be for future consideration on the spot whether the customs and usages of the Northern Circars are adapted to this mode of settlement. The Board do not suppose it is intended to introduce the system generally. Something of the kind was tried formerly in the Triennial and Decennial Leases, but was a failure in the Carnatic and Ceded Districts.

30. The different subjects to which the Government have drawn attention having now been discussed, it only remains for the Board to observe that in the proposed scheme for a revised survey and assessment, they are most unwilling to hamper the officer who shall be placed in charge of that important work, with restrictive details. It will be their duty, under sanction of Government, to enunciate general principles only, and leave it to the local examination and experience of the assessing officer to suggest such a mode of procedure as to details, as he may see best adapted to the circumstances of the case. Detailed rules that may be applicable to one District may not apply to another, and precise plans that may appear theoretically correct may on trial be found practically impossible. The size for "survey" or "revenue" field, the gradations of soil, the variety of classes, the mode of estimating the price of grain, the separation of the single from the double crop rates, and numberless other questions that are sure to occur as soon as a commencement is made of this great work, will no doubt be duly considered and reported on by the assessment officer, and it would be most inexpedient to attempt to lay down defined rules beforehand for his guidance, especially as the Board presume the duty will be committed to one whose judgment can be relied upon.

(A true Extract.)

(Signed) J. D. SIM, *Acting Secretary.*

Extract from the Proceedings of the Board of Revenue; dated 1st August 1857, No. 2585.

Read Extract Minutes of Consultation dated 25th July 1857, Revenue Department.

(Here enter No. 741.)

The first point which occurs to the Board in reference to the above letter forwarded to them by Government "for consideration," is the view Major Thuillier seems to have taken of their objection to connecting the proposed Revenue Survey with the Grand Trigonometrical. Every person of ordinary education and intelligence, must recognize the value of an accurate and detailed Topographical map of the country, but that was *not the question* before the Board when framing their letter of 27th February 1854. All they required, and all they considered themselves justified in asking for was such amount of professional accuracy as would place before them in a correct and tangible form the details neces-

sary to enable them *at once* to commence upon the long desired revision of the land assessment. In paras. 23, 24, 25, Major Thuillier seems to think the Board despised the aid of what was already recorded of Colonel Lambton's operations; but in stating that Captain Priestley's survey required "no such aid" the Board said nothing more than what the Tithe Commission and Inclosure Act Office in England say when they accept and *seal* as *correct*, the maps of thousands of Parishes prepared without any reference whatever to the stations of the Trigonometrical survey of Great Britain. The Board required certain information for fiscal purposes, and wanted it soon; they therefore limited themselves to a scheme which could at once be put into operation, the materials being at hand, and which has been found to satisfy all fiscal requirements. If the nature of the operations is to be so extended as to produce a valuable Topographical map of the country, and the Government are willing to incur the extra expense, the Board can of course not offer the slightest objection as long as the more rigorous process does not delay the preparation of the village and field maps. That they have ground for supposing that these operations must entail extra expense and delay, they need only refer to Chapters VI. and VII. Part. V. of the "Manual of Surveying," and to para. 30 of Major Thuillier's letter, which states that; "Not only must the whole work be based on the *true* meridian, "carefully established for the initial Azimuth, as derived from Astro- "nomical observations, but such true meridian must again be frequently "checked by corresponding Astronomical observations, and the Azimuth "as conveyed through the angular work from Circuit to Circuit, con- "stantly tested." Again, in para. 31 "if any thing beyond the isolat- "ed village plan is expected, a rigorous prosecution of the professional "part of the work must be adopted." The Board of Revenue cannot be supposed to possess much knowledge of Geodetical operations, but it is evident that the plan now proposed requires a higher class of professional agency than that which has hitherto been employed, and the estimate submitted by the Board, on which was based that in Extract Minutes of Consultation 14th August 1855 will probably have to be revised accordingly and submitted again for sanction to the Court of Directors. Major Thuillier however states (para. 21) that "the utmost facilities exist for connecting the present "operations with the old points"* and if so the delay which the Board anticipated, and still strongly deprecate, will be avoided. Rajah-

* *i. e. those of Colonel Lambton's Triangulation.*

mundry from the necessity of the case, will probably be the first District to be surveyed under the sanction lately received, and it remains to be seen how far the facilities mentioned by Major Thuillier will permit an early commencement and completion of the survey.

2. Major Thuillier (para. 7) correctly describes the nature of the survey which the Board recommended as sufficient for *their* purposes. "A scientific Khusrah or superior land measurement of fields, some-"what on the principle of the Bombay Revenue survey, only with the "village boundaries laid down by theodolite, professionally, in addition." If in the course of the work, the professional officer in charge could have recommended some simple means of so tying the village circuits as to *combine* them into a Topographical Map, the Board would have been still better satisfied, but they did not consider that a failure to do this would at all vitiate the value of the work for the purpose for which it was solely originated, namely a revision of a ryotwar assessment.

It is not as if Madras possessed no good Topographical Maps. Every District has been surveyed on a scale of 1 inch to a mile* (Rajamundry was so surveyed by Captain Snell in 1824), which is the largest scale of the Topographical Maps recommended by Major Thuillier (para. 38 of letter, and pages 201, 467, 468 of Manual 2d Ed).

* *The originals were sent to the Surveyor General's Office in Calcutta some years ago, and reduced copies are those now used in Madras.*

3. In para. 20 of his letter, Major Thuillier notices an apparent discrepancy in the letter of the Board under date February 27th, 1854. He supposes them to say in one place that the average size of the fields is ½ an acre, whereas in another place they estimate the size at nearly 2½. It will be observed that in para. 23 of the Proceedings referred to, the Board mention the ½ acre fields in connection with "the villages hitherto surveyed by Captain Priestley," but it was proposed to group very small fields into one, and the Board of course were aware that in other parts of the country especially in the Northern Circars, the fields are much larger; they therefore in paras. 72 and 73 when speaking of the whole Pre-

sidency assumed about $2\frac{1}{2}$ acres. The actual experience of Captain Priestley as to the extent of land that his people will survey in a given time has fallen short* of what the Board still anticipate (if the same system is continued) when "the work is in full operation" (vide para. 74 of letter of 27th February 1854.) The survey has not yet been in full operation. For month after month it has been a matter of doubt if its existence would be permitted; great reserve has been therefore exercised in applying for instruments (of which the supply is very indifferent) and other appurtenances which might have accelerated the work, and which no doubt will be sanctioned now that the full scheme is definitively decided on. Even the subordinates looked on the duty as one of a temporary nature, and lost no opportunity as soon as the experience gained under Captain Priestley qualified them, of transferring their services to the permanent and well paid "Department of Public Works." Add to this the circumstance that the arrangements for marking out village boundaries and settling disputed points were yet in their infancy, and that some misconception arose in consequence of a requisition by the Collector as to measuring the very smallest fields, (which added to the labor,) and Government will probably be satisfied that the operations have not as yet been on that scale as to permit of an unqualified determination as to the capabilities of the system. This has apparently been admitted in the Extract Minutes Consultation above referred to marginally.

4. With regard to the distinction of duty to be observed between the Professional and the Revenue officers, the Board quite concur with the views of Major Thuillier as expressed in paras. 41 et seq. of his letter. Provision should be made for the complete demarcation and adjustment of boundaries by the Revenue Department, before the Survey officer commences his operations, and when the field map of a village is complete, the Revenue establishment will commence their duties of classfication and valuation. Any survey of either boundaries, or in-

* *Vide Ex. Mins. Cons. 4th July* 1857, *No.* 676, *Revenue Department. The average has been* 450 *square miles, and* 37 *acres a day. But then this has been in a well cultivated country, where there is very little waste land, and the average area of the fields* 1 *acre. The cost* $83\frac{3}{4}$ *Rupees per square mile. The Govt. in Ex. Mins. Con. 14th Aug.* 1855, *estimated* 64 *Rupees.*

terior detail, if left to a Department which has no professional knowledge can never be better than a sketch, and in the opinion of the Board, a *shew* of accuracy where accuracy does not exist, is likely to be more mischievous than useful. Of course a mere outline or "Thâkbust" map does not pretend to accuracy, and is therefore useful as a *guide*.

5. In paras. 47 and 48, Major Thuillier refers to the subject of permanent field marks, and the Board have always urged their importance. It was with this view that they obtained the Legislative Enactment XX. of 1855 which they trust will meet all the requirements adverted to by Major Thuillier. The practicability of enforcing all the details must be left in a great measure to the officer in charge of the survey.

6. In para. 44 of his letter, Major Thuillier considers there would be no difficulty in the Superintendent supervising more than 4 "parties," and mentions that he himself has the superintendence of 14. But it is to be remembered that Captain Priestley is a *personal* Superintendent, involving a close daily inspection of the work of his subordinates, and much labour of computation on his own hands, besides giving general directions. This is very different from the kind of superintendence exercised by the Deputy Surveyor General of India whose duties keep him to Calcutta from one end of the year to the other, but who can still superintend survey parties in the Punjaub and Sind. To do this requires an Establishment on scale far beyond what the Board contemplate for the Madras Revenue Survey.

7. In conclusion, the Board would express their hope that the more rigorous method of procedure apparently required in order to connect the Revenue and Trigonometrical Survey will not stand in the way of the employment of Captain Prisetly's services. They think it but due to him to record their sense of the services hitherto, commencing as he did with very inferior materials, and by dint of perseverance and energy organizing a system which is now fully sufficient for all fiscal purposes. He has shewn every readiness to adopt his operations to meet the wishes of the Revenue authorities, and his proceedings have given great satisfaction.

(A true Extract.)

(Signed) J. D. SIM, *Acting Secretary.*

Extract from the Minutes Consultation, dated 14th August 1857,

No. 815.

The Right Honorable the Governor in Council resolves to forward for the consideration of Mr. Newill, the officer recently appointed Superintendent of Settlement for the General survey, copies of the Proceedings of the Board of Revenue above recorded, and of the papers noted in the margin, relating to the proposed survey and assessment of the lands of this Presidency. The Governor in Council will not add any remarks on the present occasion, further than to express his opinion, that the survey should decidedly be a perfect one, and should be connected with the grand triangulation, the stations of which has marked by Colonel Lambton are understood to be very generally recognizable. Major Thuillier, it is observed from para. 21 of his letter to the Government of India dated 6th May last No. 13, apprehends no difficulty in the matter.

Extract Minutes Consultation	14th	August	1855.	No.	951.
To Honorable Court of Directors	11th	October	,,	,,	44.
From Government of India	16th	October	1856,	,,	1396.
From Honorable Court of Directors	17th	Dec.	,,	,,	17.
Extract Minutes Consultation	22d	April	1857,	,,	372.
From Government of India with enclosures and Maps.	5th	June	,,	,,	810.

(Signed) H. FORBES,

Acting Secretary to Government.

Extract from the Minutes of Consultation under date the 25th August 1857, No. 855.

Para. 1. The Right Honorable the Governor in Council proceeds to pass orders on the letter from the Honorable Court of Directors* in this department dated 8th April 1857, No. 2.

* Paras 7 and 8.

Paras. 7 and 8. Notice with approbation Mr. W. H. Bayley's Memo. on the Native land and other measures in use in the Districts of the Madras Presidency, and the resolution of Government to adopt the English acre decimally divided. Allude to their Dispatch to the Government of India on the subject of adopting the English acre for all Revenue surveys and for Settlement records of territory assessed on a survey basis; consider it desirable that the sub-divisions of the acre should be assimilated in all parts of India, and desire that this Government will take the subject into consideration, and communicate with the Government of India.

3. These paras. will be communicated to the Board of Revenue, with reference to the correspondence that has passed upon the subject. In Extract Minutes Consultation 6th June 1855, No. 685, the Government expressed a wish that the statements in Mr. Bayley's Memo. should be verified before the Memo. was printed; this requisition has been complied with in the Board's Proceedings of the 31st May 1856, which will be forwarded to the Honorable Court together with the other papers in connection with that order, as recorded in the Consultations noted in the margin.†

† *Rev.* *1st April* 1856, *No.* 3.
24th June „ „ 32-33.
5th August „ „ 42-43.

4. As the Government have, in Extract Minutes Consultation 6th July 1855, No. 808, acquiesced in the Board's plan of adopting the acre, divided decimally, they will now, in conformity with the Honorable Court's wish, address the Government of India, with the view of ascertaining what sub-division of the acre has been resolved on by that authority in "Revenue Surveys and for the Settlement records of territory assessed on a Survey basis," in order to the suggestion for an assimilation of the system in all parts of India being considered.

Letter from H. FORBES, Esq., Acting Secretary to the Government of Fort Saint George; to CECIL BEADON, Esq., Secretary to the Government of India; dated 25th August 1857, No. 856.

SIR,

With reference to the correspondence alluded to in the letter to your address dated 22d August 1855, No. 972, and to a recent* communication from the Honorable Court of Directors on the subject, an Extract of which is subjoined, I am desired by the Right Honorable the Governor in Council to request, that with the permission of the Right Honorable the Governor General of India in Council, this Government may be favored with information as to the sub-division of the Acre that may have been resolved upon by the Government of India for "Revenue surveys and for the Settlement records of territory assessed on a survey basis," in view to the Honorable Court's suggestion for an assimilation of the system in all parts of India being considered.

*Paras. 7-8, Rev. letter 8th April 1857, No. 2.

Extract from the Proceedings of the Board of Revenue, dated 15th August 1857, No. 2723.

Read letter from Captain F. J. B. PRIESTLEY, Superintendent Revenue Survey; to the Acting Secretary to the Board of Revenue; dated Palimcottah 29th July 1857, No. 86.

SIR,

Having now been able to apply the test of comparison between the distance of two points as given by the G. T. Survey and as ascertained from the operations of the Revenue Survey, I do myself the honor to send you the results with such explanatory remarks as seemed requisite to divest the affair of all technicalities.

In the Arealore talook there is no complete G. T. S. triangle. There are in all only five stations, viz. Audathoray Pagoda, Purwayi station, Arealore Pagoda, Sillagoody station and Trimulwady Pagoda.

Audathoray is on the Vellar, Trimulwady on the Coleroon, the other stations intermediate.

The distance from Audathoray Pagoda to Purwayi station is by the G. T. S. 40,161 feet, by the Revenue survey 39,957 feet which gives a difference of 204 feet 0·5 per cent. or 26·8 feet per mile.

Purwayi is unfortunately unconnected by triangulation with any other G. T. Survey station in the Arealore talook.

The Istimrar or Zemindar's property was not included in the Revenue Survey of the Arealore talook, consequently I did not ascertain the exact position of the Arealore Pagoda which is situated within it.

In order however to obtain a test, I calculated the distance between the Purwayi and Sillagoody stations from sides and angles of different G. T. S. triangles, and found it to be 84,046 feet; by the Revenue Survey it was given 83,941 feet, shewing a difference of 105 feet 0·126 per cent. or 6·6 feet per mile.

The following is the method adopted to apply the test of comparison.

In the accompanying sketch Map A the red lines and dots are the station lines and stations of the grand circuits by which the boundary of the Arealore talook was taken.

The black lines are the sides of some of the G. T. Survey triangles.

The dotted red lines represent the "difference of latitude" and "departure" given by the traverse.

These lines of "latitude" and "departure" furnish two sides containing the right angle of a triangle of which the side of a G. T. Survey triangle is the hypothenuse, and the difference in the distance found by calcaulation from the two given sides and included right angle and the distance as laid down trigonometrically is the error in the work of the Revenue Survey.

Extract from Revenue Survey Arealore Talook.

Stations.	Distances from the Arealore Pagoda G. T. S.			
	Meridian.		Perpendicular.	
From Audathoray Pagoda.		Feet.		Feet.
To station on rock in Vellar...	N.	910	W.	400
To junction of Purwayi, Cooroomboor and Volcondapoorum Talook...	S.	33,332	,,	9,839
To junction of Purwayi, Nunnay and Veypoor.	,,	35,152	E.	273
To Purwayi, G. T. S. ...	,,	39,956	W.	463

A Audathoray Pagoda.
P Purwayi Station.
D Angle formed by Lat and Dep.

A D = 39,956... } A D P 90°
D P = 463... }

(I) D P : Rad :: D A : tang. P.
10·0000000 log. of 90° or Radius.
4·6015820 log. of 39956 = D A.

14·6015820
2·6655810 log. of 463 = D P

11·9360010 tang. of ∟ P 89° 20' 10″

(II) Rad : D P :: Sec. P : Hyp. A. P.
2·6655810 log. of 463 = D P.
11·9360109 log. of Sec. 89°20′ 10″

14·6015919
10·0000000 log. of 90° or Radius.

4·6015919 = 39957 A P.

(See Sketch Map.)

B

(See Map of Triangles B.) The angle at Neddavassel Hill of the triangle Sillagoody, Neddavassel and Irroor is......	83°	21′	54″
The angle at Neddavassel in the triangle Irroor, Neddavassel and Worthamalli is......	67	44	30
And in the triangle Worthamalli, Neddavassel and Purwayi the Neddavassel angle is......	123	54	40
	275	1	4
	360	0	0
Angle at Neddavassel......	84	58	56

in triangle Purwayi Needavassel and Sillagoody.

From Purwayi to Neddavassel 55496 feet. }
From Sillagoody to Neddavassel 68165 feet. } included angle 84°. 58′. 56″

$$PN + NS : PN - NS :: \text{tang.} \frac{P+S.}{2} : \text{tang} \frac{P-S}{2}$$

4·1027423 = 12669

10·0380869 = tang. 47°. 30′. 33″ $= \frac{P+S}{2}$

14·1408292
5·0922327 = 123661

9·0485975 tang. 6°. 22′. 49″ $= \frac{P-S}{2}$

53°.. 53′.. 22″ Greater angle

95°.. 1'.. 4" — 53°.. 53'.. 22" = 41°.. 7'.. 42" lesser angle.
Sin 41°.. 7'.. 42" : 55496 :: Sin 84°.. 58'.. 56"
4·7442617 = 55496
9·9983328 = Sin 84°. 58'. 56".

14·7425945
9·8180767 Sin 41°. 7'. 42".

4·9245178 = 84047. distance by G. T. Survey between Purwayi and Sillagoody.

Extract from Revenue Survey Arealore Talook.

Stations.	Distances from Purwayi G. T. S.	
	Meridian.	Perpendicular.
From Purwayi Stations.	Ft.	Ft.
To junction of Purwayi Nunnay and Veypoor.	N. 4,789	E. 736
To junction of Sillagoody Cullagun and Volcondapoorum talook,.....................	S. 83,320	W. 18,673
To Sillagoody G. T. S...........................	,, 83,094	,, 11,936

P L 83094 }
S L 11936 } ∟ P L S=90°
S L: rad:: P L: tang P
10·0000000 rad
4·9195697 83094

14·9195697
4·0768588 11936

10·8427109=81°. 49'. 30".

P. Purwayi Station
S. Sillagoody Do.
L. ∟ formed by Lat. and Dep.
rad: S L:: Sec. L: P. S
4·0768588
10·8471086

14·9239674
10·0000000

4·9239674=83941

(See Sketch Map.)

(Signed) F. J. B. PRIESTLEY, *Captain,*
Supt. Revenue Survey.

Resolved that the above letter with its enclosures (2 Maps) be submitted to Government, with reference to the Board's Proceedings of the 1st Instant, No. 2585, on the communication from Captain Thuillier Extract Minutes Consultation 25th July 1857, No. 741, R. D.

2. Captain Priestley has been able to try the accuracy of his work by a most satisfactory test, namely the connection of portions of his traverse with some of Colonel Lambton's Trigonometrical points. In one instance the length of the portion tested was about 40,000 feet, or more than 7½ miles, and in the other 84,000 feet or 16 miles. In the first instance the error is nearly 27 feet in a mile, and in the latter only 6½ feet. The Board have since been informed by Captain Priestley that he considers the error in the first mentioned line to have arisen from defective chains made in the country. He has since been supplied with others received direct from a good maker in London.

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3. In the N. W. Surveys the errors ranged from 1½ to as much as 33½ feet in the mile, and in "recent operations" only 7 feet. This leads the Board to believe that Captain Priestly's method may be brought to close in on the Trigonometrical points, as correctly as the survey of the N. W. Provinces.

4. The method adopted for making the test is simple and complete. The triangulation points are joined by direct measurement, (or else by calculation from sides of a triangle) to the nearest "station point" of the survey traverse. In the instances before the Board traverse stations were found within 1,000, 5,000 and a few hundred feet of Trigonometrical stations.

5. The recorded traverse lines, with the small junction lines, form a complete traverse, of which the whole computation work excepting the little additional for the junction lines; is already *on record.* From this perfect traverse, beginning at one Trigonometrical station, and working round to the other, can be obtained the "difference of latitude" and also the "departure" between the two points. These form the two sides of a right angled triangle, of which the *distance* between the two points is the hypothenuse. This distance is then found by plane Trigonometry from the two other sides, and if the result agrees with the computation of the trigonometrical triangle, the traverse is correct.

6. For instance, the traverse work, (including the small lines joining the Sillagoody and Purwaee stations to the Survey stations) results in giving a difference of latitude P L=83,094 feet, and a departure L S=

11,936 feet. From these data the side PS is calculated, viz. 83,941 feet. Whereas from the angles of the triangles recorded in Colonel Lambton's operations (which triangles are shewn in the 2d Map) the side PS† is 84,046 feet or a difference of 105 feet in 84,000 or 1 in 800; or 6½ feet in a mile; a difference almost inappreciable in a map two feet square and quite so in a map of a mile to an inch such as Major Thuillier proposes for the Pergunnah maps.

† *The side P S is not given in the triangle sheet, because the angle PN S was not measured by Colonel Lambton. But deducting the other angles of which N (Nedavasal) is the centre, which were measured, from 360°, leaves PNS=84° 58' 56" and since the sides NP NS are recorded in Lambton's operations, there are data for computing the side PS=84,046 feet.*

7. Captain Priestley has informed the Board that he has the calculations prepared for other similar tests, which he will submit shortly.

(A true Extract.)

(Signed) J. D. SIM, *Acting Secretary.*

Extract Minutes Consultation, dated 7th September 1857, *No.* 896.

To be communicated to the Superintendent of Settlement for the General Survey, in continuation of Extract Minutes Consultation 14th Ultimo, No. 815.

(Signed) H. FORBES,

Acting Secretary to Government.

Letter from H. NEWILL, Esq., Superintendent of Settlement for General Survey; to H. FORBES, Esq., Acting Secretary to Government; dated Madras, 17th August 1857, No. 1.

SIR,

In acknowledging the receipt of Extract Minutes Consultation dated 14th Instant, referring certain papers for my consideration, I would take the opportunity of requesting to be favored with such general instructions as the Government may see fit to lay down for my guidance in the conduct of the duties assigned to me, and also further to bring to notice the following points which occur to me as requiring the orders of Government at the present initiatory stage of my proceedings.

2. In the first place, I propose to entertain a tempory Establishment of a few Clerks, &c., for the purpose of collecting such information, in transcribing such parts of the manuscript correspondence of the Board's office as may have reference to the subject of the assessment and survey now under consideration, as well as to conduct the necessary correspondence connected with my preliminary enquiries and duties. I beg to request sanction for a sum for this purpose not exceeding at present 250 Rs. per mensem, to be disbursed according as circumstances may require.

3. It seems also desirable that provision should be made for the copying in the Chief Engineer's office, of any maps or plans which may be necessary to illustrate the propositions which may be laid before the Government, the cost being charged in a contingent bill or adjusted in such other manner as may be pointed out.

4. A limited sum may also be required for boxes for the records entrusted to me and other contingent expenses.

5. The provision of accommodation for my office is also to be considered, and I propose as the most convenient course to provide this at my private residence under such conditions as may be thought proper. At first the accommodation required will be trifling, but eventually when the Establishment is fully organized more extensive room will be requisite.

6. As information will be required from the several Districts on matters connected with the general question of the new settlement of the assessment, I would suggest that the several Collectors and other

Revenue officers in the provinces should be authorized to furnish this on my requisition, and be instructed to afford their aid in carrying out any measures which may be adopted in prosecution of the survey and settlement.

7. The privilege of franking letters, &c., on the public service should be formally conferred on myself and also on the Surveyor General when appointed, to prevent confusion or objection in the Postal Department.

8. A copy of the official Gazette should also be furnished for the use of this Department.

9. I request also permission to indent for the requisite supply of Stationery in the usual manner.

10. As the facilities for connecting the Revenue Survey with the recorded triangulation of the Presidency and the experimental steps that Captain Priestley has taken in this matter can be best discussed with that officer and others at Madras, who may be qualified to give an opinion on this professional question, I would suggest that Captain Priestley should be allowed to come to the Presidency for a few days with the view to this primary point being determined.

Extract Minutes Consultation, dated 11th September 1857, No. 921.

Para. 1. This letter is dated the 17th August, and in it Mr. Newill makes the following statements and requests.

1st. That he should be furnished with some general instructions for his guidance in the duties assigned to him.

2nd. That he should be permitted to employ a temporary establishment of clerks at a cost of Rupees 250 per mensem, for the purpose of collecting information, and transcribing correspondence in the office of the Board of Revenue bearing on the subject of the assessment and survey; as well as for conducting the correspondence connected with his preliminary enquiries.

3rd. That provision should be made for copying in the Chief Engineer's Office, of any maps and plans that may be necessary, the cost being charged in a contingent bill.

4th. That he be allowed to expend a limited sum for record boxes and other contingent expenses.

5th. That accommodation be provided for his office.

6th. That the several Revenue officers in the provinces should be authorized to furnish him with any information that he may require in matters connected with his duties, and afford their aid in carrying out the measures which may be determined on in prosecution of the survey and settlement.

7th. That the privilege of franking letters, &c., be conferred on himself and the Surveyor General.

8th. That a copy of the Official Gazette be supplied for the use of his department.

9th. That he may be permitted to indent for the requisite supply of stationery; and

10th. That Captain Priestley should be permitted to visit the Presidency in order to a discussion being held with him, and other officers, on the professional question of connecting the Revenue Survey with the recorded triangulation of this Presidency.

2. As regards the first request, the Government resolve to issue the following instructions. It is the desire of Government, now that a Superintendent of Settlement and a Surveyor General have been appointed, that those officers should immediately consider the detailed establishments they will require to carry on the survey and re-assessment of this Presidency, so that application may, without loss of time, be made for the sanction of the Government of India.

3. The Surveyor General will put himself in communication with the Superintendent, and both officers will place themselves in communication with the Board of Revenue, and will submit for the Board's approval, and for eventual transmission to Government, a plan of operations they propose to follow, the establishment they will require at the outset, and the full establishment they will need when their Departments are in full operation.

4. It is the intention of the Government that the operations should be carried on under the general supervision of the Board of Revenue; and the Board will now be requested to receive a plan of operations from the Superintendent and the Surveyor General, and after giving them consideration, to prepare for the approval of Government, such a general outline of the course which each Department should follow, as, while it will leave much to the discretion of each officer, and will allow of his benefiting by the experience he may obtain in the actual course of his duty, shall yet enable him to commence his operations on a definite system, approved by the Board and the Government.

5. This may not be so necessary in the case of the survey, as in that of the settlement of the assessment. Captain Priestley has already become familiar with the mode of conducting the operations of the Department of which he is now the head, and the only novelty to him will be, an enlarged sphere of action, and a sustained endeavour to increase the number of his efficient working parties. Notwithstanding this, however, the Government are of opinion that rules for the guidance of his Department should be laid down in detail, in order that the record of all connected with the survey and re-assessment should be complete in all its parts.

6. Mr. Newill has a Department to organize, the constituent parts of which can be determined only after the general rules which shall guide the calculation of the assessment, shall have been finally decided on.

7. To this matter the Government invite the earliest attention of the Board; and they will at the same time be requested to give attention to the communication received by Government from the Commissioner for the revision of Civil salaries, on the subject of investigations into rent free tenures, a copy of which will be transmitted to them for the purpose. It is observed that an Extract from the Minutes of Consultation of the 19th January last, No. 66, in which the subject was discussed by Government, has already been forwarded to the Board. The Board will not fail to remember that the settlement has yet to be fixed in the talooks of South Arcot lately surveyed by Captain Priestley, and they will make provision for the Superintendent's attention being, in the first instance, given to that Province. The only other point to which the attention of the Board will be now attracted is the wish of Government that Rajahmundry and Masulipatam should be the two first Districts surveyed and re-assessed.

8. The Government resolve to accede to the requests made in paras. 2 to 5. They do not consider it necessary to sanction a specific sum for present establishment; but they authorize Mr. Newill to employ such temporary hands as he may have actually occasion for, and to charge for the same in a contingent bill. Mr. Newill's application, it is observed, is for the aid of copyists only, and it does not appear to the Government likely that he can require 250 Rupees a month for that purpose, a sum that would suffice for the employment of a dozen servants of this description. As regards an office, the Government are of

opinion that, at all events for the present, the Superintendent may find accommodation in the Board of Revenue.

9. The Government also permit Mr. Newill to disburse whatever sums may be necessary for copying maps and plans in the Chief Engineer's Office, and to incur all necessary contingent expenses connected with his office, charging for these, in the like manner in contingent bills.

10. As regards the request contained in para. 6, the Board of Revenue will instruct the Revenue officers in the provinces to furnish Mr. Newill with all the informations and aid he may need in the prosecution of the special duties entrusted to him.

11. With reference to the request made in para. 7, the Government observe that it will be as necessary that the power to frank be given to the Assistant Superintendents, as to the Superintendent himself, in order that they may report their proceedings to, and obtain instructions from, their superior. To avoid therefore a repeated reference on one subject, the Government propose to defer any application to the Government of India for permission to the Superintendent to frank official letters, until his Department has been so far organized as to make it clear what officers should be included in the privilege, and the leave of the Government of India will be then applied for once for all, in the mean time Mr. Newill's letters will be franked by the Secretary to the Board of Revenue. The Surveyor General in Bengal is authorized to frank letters, and it appears to Government that the privilege may be claimed at this Presidency, but if any objection should be made by the Post Office authorities, Captain Priestley will also send his letters to the Secretary to the Board to be franked, pending the organization of his Department, when application to the Government of India will be made on his account at the same time that it is made on account of the Superintendent of Settlement.

12. The Superintendent of the Fort Saint George Gazette Press will be instructed to furnish the Superintendent of Settlement with a copy of the Official Gazette from the 1st of September.

13. The Superintendent of Settlement is also authorized to indent for stationery and other articles that may be required for the use of his office, in the usual manner.

14. It is observed, that Captain Priestley was recently on a visit to the Presidency on urgent private affairs, and has just returned to his

station in South Arcot. It is however open to him under his new appointment of Surveyor General, to proceed wherever his duty calls him, and if his presence is required in Madras, the Government have no objection to his coming down for the purpose specified by Mr. Newill.

(Signed) H. FORBES,
Acting Secretary to Government.

Letter from H. NEWILL, Esq., Superintendent of Settlement for General Survey; to H. FORBES, Esq., Acting Secretary to Government; dated Madras, 27th August 1857, No. 8.

SIR,

As attention has been directed to the Godavery Delta as one of the first places to which the Revenue Survey operations should be extended, I have the honor to suggest that application should be made for the supply from the Surveyor General's Office at Calcutta without loss of time of such maps and other records as relate to the Grand Trigonometrical Survey and the minor triangulations conducted in that locality. It may be desirable to procure at the same time the papers relating to the Kistnah Delta; and the Districts of Rajahmundry, Masulipatam and Guntoor, as well as those also of North and South Arcot and Trichinopoly may be specified as those for which the records are more urgenlty required.

2. I have been able to obtain from the Chief Engineer's office, a map of Colonel Lambton's triangulation, but this does not extend to the North of the Kistnah, and professes only to include operations up to 1814. From the records in the Collector's office at Guntoor, I am aware that a portion of that district, which is blank in the map alluded to, was triangulated at a subsequent period, and it is very probable, that the same may apply also to the Masulipatam and Rajahmundry Districts, particularly as the Topographical map of the latter, gives the date of 1821 to 1824 as the period of its survey. No details, beyond a list of villages in this district, could be traced in the records of the Surveyor General's Department deposited in the Chief Engineer's office.

3. In para. 25 of the Deputy Surveyor General's letter to the Government of India dated 6th May 1857, forwarded to me with Extract Minutes Consultation under date 14th Instant, it is stated that a large Chart of the Triangulation of the Peninsula of India has been furnished to the Revenue Board, and that the numerical data of a great

portion of it with Extracts from Colonel Lambton's memoirs and papers were under transcript in the Deputy Surveyor General's office on the requisition of the Madras Government. Upon enquiry at the Board's office I find the Chart above alluded to is not forthcoming, but I presume the one I have obtained from the Chief Engineer may be a copy of it. In preparing the transcripts alluded to it may be suggested that the portions relating to the districts specified in para. 1, or such others as the Government may see fit to select, should be first completed and despatched.

4. I would beg also to draw attention to the circumstance of much of the minor triangulation in the districts of this Presidency having been conducted by the Military Institution under, I believe, the control of the Surveyor General at periods much later than the time of Colonel Lambton's grand triangulation, in connection with the subsequent topographical survey of the several districts : and to suggest that the records of this survey should also be consulted, with the view of obtaining all the trigonometrical data that they may afford, and which as above alluded to may supply the large blanks in the Chart of Colonel Lambton's operations.

Extract Minutes of Consultation, dated 16*th September* 1857, *No.* 945.

From Chief Engineer	19*th June* 1855	*No.*		142
To Govt. of India	2*nd July*	,,	,,	786
From do.	28*th* ,,	,,	,,	858
From do.	14*th Sept.*	,,	,,	220
From Chief Engineer	13*th Oct.*	,,	,,	165
To Govt. of India	26*th* ,,	,,	,,	1190
From do.	21*st Jany.* 1856	,,		667
From Chief Engineer	10*th March*	,,	,,	178
To Govt. of India	27*th* ,,	,,	,,	329
From do,	19*th July*	,,	,,	405

The Government have already been in communication with the Government of India regarding the records of the Grand Trigonometrical survey appertaining to the operations in this Presidency, and they now resolve to forward a copy of the correspondence to the Superintendent of Settlement, in view to his being kept informed not only of their proceedings in the matter, but also, of the description and nature of the documents in the Surveyor General's office which are being transcribed for the use of this Government.

Ordered that the Superintendent's letter be forwarded to the Government of India with the following communication.

(Signed) H. FORBES,
Acting Secretary to Government.

Letter from H. FORBES, Esq., Acting Secretary to the Government of Fort St. George; to CECIL BEADON, Esq., Secretary to the Government of India; dated 16th September 1857, No. 946.

SIR,

With reference to the correspondence noted in the margin and previous papers on the same subject, I am directed by the Right Honorable the Governor in Council to forward copy of a letter from the Superintendent of Settlement for the General Survey of this Presidency, applying for copies of such Maps and other records as relate to the Grand Trigonometrical Survey, and the minor triangulations, conducted in the Godavery and Kistnah Deltas, and generally in the Districts of Rajahmundry, Masulipatam and Guntoor, as well as in those of North and South Arcot; and to request that with the permission of the Government of India, the necessary instructions may be issued for their supply from the Surveyor General's office at Calcutta.

To Govt. of India 27th March 1856, *No.* 329.
From do. 19th July „ „ 908.

2. I am also desired to request that the attention of the Deputy Surveyor General may be directed to the suggestion of the Suprintendent of Settlement that, in the transcription which is now being made under the sanction of the Government of India dated 19th July 1856 of certain documents of the Trigonometrical Survey for the use of this Government, the portions relating to the Districts specified in his letter should be first completed and despatched.

Letter from J. D. SIM, Esq., Acting Secretary to the Board of Revenue; to H. FORBES, Esq., Acting Secretary to Government, Revenue Department; dated Fort St. George, 9th November 1857, No. 3853.

SIR,

With reference to para. 3 of Extract Minutes Consultation of 11th September 1857, No. 921, Revenue Department, I am directed to submit list of Establishment, required for immediate service, in the Departments of Revenue Survey and Assessment.

2. The Board have received voluminous communications from Mr. Newill on the subject of his and Captain Priestley's operations, but as the most important portion was not received till October 29th

1857, there has not yet been time to complete the Proceedings of the Board relative to all the various points discussed : but as it is of very great consequence that work on a more efficient scale than the *tentative* system now in progress, should commence, the Board consider it advisable to take first into consideration the Establishments asked for, and submit them to Government. The Establishment for the Assessment can only be considered temporary, for Mr. Newill has no data for an extensive and novel duty of this kind, and it must be revised after a few months' experience of its actual working. The Board are no better able to judge than Mr. Newill as to the class of people he will require.

No. 1 of Appendix.

3. Mr. Newill in reference to the demarcation of boundaries, proposes to employ persons taken from the Establishment of the Collector of the District, whose places will be temporarily filled up. As this is an expense which should fall on the survey, he proposes to include the pay of these demarcation Overseers in a kind of supplementary establishment.*

**No. 1 of Appendix (at end.)*

4. Mr. Newill has also expressed a wish in his letter of 5th November 1857, that the pay of his "Chief Accountant" (200 Rupees) may be increased as his service extends, in the same manner as the pay of Serishtadars in settled Districts, as shewn in page 4 of Volume 1 of the Board's Circular Orders. These officers obtain 70 Pagodas after 5 years' service, 80 after 10, 100 after 15, and 125 after 20.

5. Mr. Newill also requests that the people of his Establishment may be allowed to draw Travelling Batta the whole time they are *absent from Madras,* at the same rate that are paid to other Revenue servants. He considers also that the Peons are entitled to batta in the same way as Peons of the Collector's Establishment deputed beyond the limits of their District.

Para. 40 *Extract Minutes Consultation of* 14*th May* 1855.

6. Mr. Newill also urges that the salary (1000 Rupees a month) proposed for his Deputies is inconvenient, inasmuch as it admits of their being drawn off from the Settlement Department to the office of Sub-Collector (1,166 Rupees.) He points out that the Deputies must necessarily be persons of some experience, and therefore probably not far from their turn of promotion to Sub-Collectorships.

7. The Board not being aware on what data the Government fixed on 1,000 Rupees can hardly give an opinion on the subject, nor has Mr. Newill proposed any specific amount. Rupees 1,200 would no doubt secure able Assistants; tentage being allowed, as to Sub-Collectors.

8. Mr. Newill also requests sanction for varying the salaries of his Establishment, particularly the classifiers, if circumstances require it, as long as the aggregate amount remains the same. Considering that the Establishment is quite experimental, the Board think this discretion is very desirable. It may happen, that as in the case of the Survey, it may be found best to lower the fixed pay of the classifiers, and remunerate them in part by paying them a certain rate for so many acres classified and approved, and as regards the other persons employed, Mr. Newill may find after a little experience that some are overpaid, and some underpaid.

Para. 7 *of Ex. Mins. Cons.*

9. The above Establishment has no reference to any duty that may be required as Enam Commissioner. This is a subject which will be alluded to by the Board in other Proceedings.

Appendix II.

10. With regard to the Establishment for the *Survey*, there has been some delay, in consequence of Captain Priestley not being aware of the details that are required by Government on these points, as also from some obscurity in his explanations.

Appendix II.

11. He proposes an Establishment for himself as Superintendent, and one for *each* of the two "parties" that will soon be ready for the field. As the survey advances, and more "parties" are organized and the operations assume a more extended form, it will be necessary to submit a revised estimate. The one now asked for is that required to begin with. The only alteration the Board have made is in entering the *full* amount of the pay of the 1st Assistant. Captain Priestley recommends that the 1st Assistant should *come in* on a pay of 250 Rupees per mensem, to be increased to 350 after 3 years' service. The Board are quite of Captain Priestley's opinion, that in a duty of this kind where there may be many persons to be found partly qualified, and none *fully* so till after some experience, that it is a good plan to accommodate their allowances to their increasing qualifications;

but they think it is more suitable to enter the *full* amount in the list, with the request that in this case as in all others, the amount specified shall be considered the *full* pay, but that the Superintendent may be allowed not to disburse the whole of it till the employè has reached his full standard of qualification.* This plan has been permitted in the survey that has hitherto been going on, and as it is all regulated under the immediate and personal control of Captain Priestley, it has had an excellent effect, and is a saving to Government. The Board trust this discretion may yet be allowed to him.

* *His monthly accounts would of course shew the exact amount allowed.*

12. The other item which the Board have altered is in regard to the Deputy Superintendent. Captain Priestley to save trouble and delay in petty contingent bills, proposed to give the Deputy attached to each "party," an extra 100 Rupees to his pay, and leave him to provide what was required, such as moving office tents and furniture, repairing tents, tin cases for maps, &c. The Board however can hardly consider this as an officer's *pay*, and have entered the 100 Rs. separately at the end, for "contingent expenses" of the Deputy Superintendent; their opinion on this point seems to coincide with that of Mr. Ricketts in his Memo. forwarded by Government to the Board in Extract Minutes Consultatiom 30th October 1857, No. 1111, Revenue Department, para. 9.

13. The next portion of the survey requirement, is the stock of instruments and books, and office furniture required for one "party"† and as two parties will be immediately organized, they are required in duplicate. Captain Priestley has not informed Mr. Newill what can be procured in Madras, but there is no doubt that nearly all must come from Calcutta, and even if *all* are sent, those that may in the mean time have been procured, if the Government so authorize, will be available for the next or 3d Survey "party."

† *Appendix II.*

14. The last part of Appendix II. relates to the Lithographic establishment. The first portion is what Mr. Newill estimates, but he also submits Captain Priestley's estimate on the understanding that while his own is for general purposes, Captain Priestley's is entirely for preparing the Maps.

15. Neither Mr. Newill nor Captain Priestley has sufficient experience in the working of a Lithographic Press to be very precise in their estimates, and Mr. Newill has failed to obtain an estimate from the Chief Engineer's office. The Board after considering the matter, resolve to recommend, that as Lithography will not commence *immediately*, this part of the estimate lie over till Mr. Newill and Captain Priestley have an opportunity of discusing the matter together, and sending in a revised estimate.

16. As the season for commencing survey operations is drawing near, and as no work can be done in Rajahmundry till an establishment is sanctioned, the Board trust that though the above estimates have not been prepared with quite the accuracy that would have been expected had there been experience in these Departments, they will receive the approval of the Government of India, in order that a beginning at all events may be made.

17. The Board desire me to add, that the correspondence in which these establishments are referred to, are not sent up herewith, as they are required to enable the Board to report on the plan of operations proposed by Messrs. Newill and Priestley, and there has been no opportunity yet of having copies made. The portion of the correspondence that alludes to the establishments is of small extent. The whole will however be sent to the Government office if required, and the Board's general Report postponed.

Extract Minutes of Consultation, dated 23*rd November* 1857, *No.* 1204.

1. The Establishments proposed for the Director of Revenue Settlement and his Subordinates, and for the Superintendent of Survey and his Deputies or Assistants, as shewn in the scheme submitted with the letter recorded above, will cost, in round numbers, 4,60,000 Rupees per annum, supposing that four survey parties are organized; and if each of the four parties accomplish 700 square miles per annum, so as to complete the whole Presidency, as was formerly considered feasible in 22 years, the total expenditure will amount to more than 101 lakhs of Rupees, or nearly 25 lakhs in excess of the estimate.* And besides this, the scale now submitted does not provide for instruments, boundary marks and pillars, tra-

Area to be surveyed 60,000 *square miles.*

Vide Extract Minutes Consultation No. 951, *dated* 14*th August* 1855, *para.*38.

* 76,40,000 *Rupees.*

velling batta, tentage, or any contingencies whatever. Under these circumstances, the Government before passing orders, or making any application to the Government of India on the subject, must request the Board of Revenue to be good enough to explain in detail the data on which the present scheme for Establishments has been founded; and to shew how, supposing the Government of India to have sanctioned the Establishments as proposed, it would have been possible to keep the ultimate cost even approximately within the bounds of the estimate.

2. The Appendices of the Board's letter are herewith returned, and it is hoped that the present call may be answered at the Board's earliest convenience.

(Signed) H. FORBES,
Acting Secretary to Government.

Letter from J. D. SIM, Esq., Acting Secretary to the Board of Revenue; to H. FORBES, Esq., Acting Secretary to Government, Revenue Department; dated Fort St. George, 27th November 1857, No. 4222.

SIR,

With reference to Extract Minutes Consultation under date 23d November 1857, No. 1204, R. D., I am directed by the Board of Revenue to state that they have requested the Director of Assessment and Superintendent of Survey to revise their respective estimates of establishment, in such manner that neither shall exceed 38,00,000 Rupees.

2. The Board beg to observe that they are not aware on what data the estimate set forth in the Extract Minutes Consultation of 14th August 1855* was computed, and it appeared to them to be of so general a character, that they presumed the Government intended the proposed establishments to be prepared with reference to more detailed data: especially as regards the survey, which the Government in Extract Minutes Consultation 14th August 1857, No. 815, R. D.,

* *Paras.* 38 *to* 42.

	Rupees.
Survey	38,40,000
Assessment............	38,00,000
	76,40,000

directed should decidedly be a perfect one and connected with the grand triangulation. It will be recollected that the survey commented on in the Board's letter of 27th February 1854, on which the survey estimate of the Extract Minutes Consultation of 14th August 1855 is apparently founded, was quite a tentative one, and conducted on such economical principles that country paper was used where it ought to have been of the best kind, and even the colours no better than the cheap toy paints in England; neither was it contemplated to work to the accuracy, and with all the topographical delineation that is now required.

3. As to the establishment for assessment, Mr. Newill's is confessedly an experimental one, for the mode of assessment by villages in the N. W. Provinces afford no data whatever, and the Board were not even aware that the preparation of such an estimate as that in Extract Minutes Consultation of 14th August 1855 was in contemplation. They cannot but consider the one now forwarded by Mr. Newill exceedingly moderate, and certainly not sufficient when the operations are more extended, and the demarcation carried out in a detail which was not originally contemplated.

4. As regards boundary marks and pillars, it was proposed by the Board in their Proceedings of 15th May 1857 to recover this by a deduction from what would have been a reduction of the assessment. They have no means of ascertaining the cost of instruments, which will it is hoped be nearly all supplied from the Government Stores in Calcutta.

5. The Board would be glad if Government would state if 38,40,000 Rupees for survey and 38,00,000 Rupees for assessment is actually the maximum to which the estimates are to be revised.

Extract Minutes of Consultation, dated 11*th December* 1857, *No.* 1288.

1. The paper recorded above, is the reply of the Board of Revenue to the order of Government dated 23rd November 1857, No. 1204, Revenue Department, pointing out to them that if the Establishments for the Survey and Settlement were to be entertained on the scale recommended by them in their letter of 9th November 1857, No. 3853, the Estimate of Rupees 76,00,000 would be vastly exceeded.

E. M. C. 14*th Aug.* 1857, *No.* 951, *p.* 38.

2. The Board state that they have requested the Director of Settlement and the Superintendent of the Survey, to revise their res-

pective Estimates of Establishments, in such a manner that neither shall exceed 38,00,000 Rupees. They go on to observe that

Para. 1. they are unaware on what data the Estimate of 76 lacs of Rupees was computed; and they point out that, as Government had expressed an opinion that the survey should be a perfect one, and connected with the Grand Triangulation, the tentative survey of Captain Priestley's (which was conducted on such economical principles that inferior paper and paints were used for the Maps,) it appeared necessary that the proposed Establishments should be framed with reference to more detailed data, than those afforded by Captain Priestley's estimates and proceedings.

3. The Government observe that a reference to the Extract Minutes Consultation above quoted, would have shewn the Board of Revenue that the estimates were in the main framed on Captain Priestley's own data, and these, with the cost of the Bengal, N. W. Provinces, and Bombay Surveys, must be taken as a guide in the first instance. The Government are fully aware that much more minute detail will be necessary in this Presidency than elsewhere; and it is again probable that the wages of labour being higher in the Madras Presidency than in Bengal, (and probably than in Bombay also) there would be further cause for additional cost here; they would not therefore wish to bind the Board down too closely; but inasmuch as the estimates have been framed on the experience of Captain Priestley's operations, which, were in their turn calculated on that of the Survey's in Upper India, and as sanction for the Survey has been asked and obtained on the understanding that the true cost is represented by those estimates, they think that the present establishments should not be in excess of what has been already practically demonstrated to be necessary.

	Rupees.
A.	37,524
B.	31,287
C.	32,610
D.	48,978

4. As an example of the scale on which the estimates under notice have been framed, the sanctioned cost of each Surveyor's establishment in Bengal,*A* the N. W. Provinces,*B* and in South Arcot*C* under Captain Priestley is marginally compared with that*D* of each of those now proposed by Mr. Newill and the Board.

5. And it is further necessary to point out that a margin must be left for contingencies; for Travelling Batta, for the expense of find-

ing the Grand Trigonometrical Survey Stations; and for the demarcation of boundaries and erecting the boundary pillars. This last item however is of such importance that the Governor in Council deems it necessary to go into some detail about it.

6. For the demarcation of boundaries 4 persons at Rupees 30, and 8 Peons at Rupees 5 are the only officials supposed by Mr. Newill to be necessary; as these only work for 6 months a year, the total yearly expenditure proposed for the demarcation establishment is thus 960 Rs.

7. The determining and marking of boundaries, is the primary and fundamental process in a Revenue survey. All other operatiens are entirely dependent upon it. It is absolutely necessary that the surveying party should always find their work ready for them, that they may be able immediately to recognize what they are to survey. This necessity is so thoroughly recognized in Bengal and the N. W. Provinces, that there a Surveyor is peremptorily forbidden to undertake any boundary which has not been previously "demarcated" by the establishment appointed for the purpose.

8. Captains Smith and Thuillier express themselves in different parts of their "Manual," as follows on this subject;

Page 516. "As a preliminary and most important part of survey "operations, the accurate demarcation of boundaries "and settlement of disputes is carried on by a distinct "establishment specially appointed for the purpose...................... "which proceeds the survey in such a way that the Surveyor may always find *adjusted boundaries and plenty of them*, to keep his parties "at work."..

Page 516. "The demarcation office must keep so well in advance, that no hindrance whatever may occur to the "Surveyor."

Page 517. "They" (the survey establishment) "are thus "entirely dependent on the Settlement officer (subordinate to whom the demarcation establishment is) for a "fair field to labour in."..

Page 519. .... "The utmost necessity exists that all "cases of disputed boundaries be properly adjusted prior "to the survey; unless it is so, the survey is delayed, "and its records are thrown into confusion."

Page 290. "It is the duty of the Sub-Assistant Surveyor to "compare the external boundary of the village maps "with the Thakbust or demarcation map,"................................ "the boundary Surveyor reports any difference he may have observed "between the Tháks (or mud or other pillars shewing the boundaries) "as actually existing, and those given in the demarcation map."

"By the delay caused to the survey party by non-adjusted boun- "daries, the cost of the survey is considerably increased." This effect - it may be observed, has already been practically experienced by Captain Priestley in his preliminary operations in South Arcot and the dry talooks of Trichinopoly.

9. Now, supposing that sanction were immediately granted for the Establishments asked for, for Captain Priestley and the two parties which the Board (para. 11. of letter of November 9) say will soon be ready for the field, the consequence will be that they would find not a single day's work ready for them ; not a single boundary demarcated ; not a solitary dispute settled. And with the very small Establishment of 12 individuals asked for, it seems quite impossible that even supposing all the boundaries to be undisputed, which is hardly probable, they will be able to push on so fast as to keep two entire survey parties supplied with "adjusted boundaries and plenty of them." Operations are about to be conducted on as large a scale here as in Upper India, and there is no reason to suppose that an Establishment equal to that employed in those parts for the demarcation of boundaries, will not be required in this Presidency.

10. The demarcation establishment entertained in the N. W. cost Rupees 16,248 per annum, and is described in page 516 of Captains Smith and Thuillier's Manual.

11. In framing the establishments therefore, the Government are of opinion, that, unless Mr. Newill can distinctly shew that other and cheaper agency will be sufficient, allowance should be made for a demarcation establishment of equal strength to that above specified. It will be of course presided over by one of Mr. Newill's deputies.

12. In directing the resubmission of the estimates, revised in accordance with the instructions above given, the Government have only to repeat their former observation, that they have no wish to stint the Board or to bind them down rigidly to a given sum ; if on reconsider-

ing the subject, the Board are still of opinion that the data on which the original estimates were framed, are insufficient for the wants of this Presidency, the circumstance will be brought to the notice of the Government of India, with an intimation that a larger grant will be subsequently applied for; but for the present, this Government must be guided in making their applications for sanction, by the experience of former surveys of other parts of India.

(Signed) H. FORBES,

Acting Secretary to Government.

Extract from the Proceedings of the Board of Revenue; dated 17th November 1857, No. 3983.

* *In Cons. 17th November* 1857.

Read the following letter from H. Newill, Esq., Director of Revenue Settlement, dated 13th November 1857.* No. 61.

SIR,

I have the honor to forward copy of a letter from the Superintendent Revenue Survey in which he proposes to extend the Survey operations in the ensuing season to the Volcondapoorum Talook of Trichinopoly and states that no time should be lost in making the requisite preliminary arrangements. This letter has been detained a few days in order to obtain further information requisite for submitting a proposal for the employment in the next season of the South Arcot party and of the new party to be organized as proposed in the communication forwarded to the Board on the 16th Ultimo.

2. As regards the Southern party, the single Talook of Volcondapoorum, the area of which is assumed at 450 square miles will not probably afford sufficient work for the whole season, and it seems desirable that the remaining (and adjoining) dry Talooks of Toriore should be included in the field of proposed labor.

3. The Godavery party proposed to be organized may take up the portion of the Godavery Delta lying to the East of the River, comprizing the Mogultoor, Oondy and Tanookoo Talooks in the subdivision of Rajahmundry and the Reylangy and Pentapaud Talooks in Masulipatam, all of which now receive irrigation from the Godavery annicut.

This field of operation is proposed after communication with the Collectors of both Districts, who have selected the Talooks specified as the most suitable for the commencement of the survey. This portion of country may be assumed on a rough estimation from the Map (in which the whole of the boundaries are not defined,) at about 1,000 Geographical square miles, and will be more than ample for the new Survey party for the first season. I do not consider that any inconvenience will arise from the selection of the fields in 2 Districts, but on the contrary, it has the advantage of bringing 2 agencies to work in the important preliminary of defining the village and field boundaries, which I have proposed in para. 15 of my letter of 16th Ultimo, should be done with the aid of the Talook and Village Servants.

4. The only drawback to the selection of this tract or indeed of any other part of the Godavery Delta for the commencement of operations, is, the absence of any record of the trigonometrical Survey for the Rajahmundry District, and the inaccuracy of the minor triangulations for the Ellore Circar of Masulipatam, which take in a portion of Reylangy and Pentapaud Talooks; but in the event of the expected transcripts of these requisite papers not arriving in time from Calcutta, operations may commence with the Talook of Goodewada in Masulipatam, for which trigonometrical papers are forthcoming, as the Collector states this to be irrigated from the Kistna Annicut, and to be equally suited for Survey, though the adjoining Talooks are not so. It seems however preferable that if practicable, the 2nd party should be confined to the Godavery Delta, and a 3d party be organized afterwards for the Kistna Delta.

5. As no time should be lost and Captain Priestley is urgent for speedy instructions as to the future extension of his operation in the South, I trust the Board will do me the favor of submitting the above proposition for the early consideration of Government. In the meanwhile, I have thought it proper that Captain Priestley should not defer his preparations for the Talook of Volcondapoorum.

6. It seems equally important that the preliminary work of laying down the boundaries for the Godavery Survey-party should not be deferred, particularly as it is proposed in para. 15 of my letter of 16th Ultimo, that this should be completed if possible, both with regard to the villages and fields, before the survey is commenced; but I do not feel at liberty to enter upon this new field without previous instructions.

7. In the latter part of his letter Captain Priestley requests explicit instructions as to what fields should be measured in detail and constituted separate numbers. I did not allude to this point in my general plan of operation, as I considered it already disposed of in para. 22 of Board's Proceedings of 15th May 1857, No. 1603, as approved in para. 20 of Extract of Minutes of Consultation dated 7th July 1857. I shall accordingly address Captain Priestley on the subject, with the view to arranging for the minute details in such cases being left to the Curnums as suggested in the para. of the Board's Proceedings above quoted; for they cannot go far wrong in measuring where necessary patches within the circumscribed boundary of 2 acres area, particularly as their measurements may be checked by the Survey Ameens noting the points of contact of the lines of the interior plots with the exterior lines of the survey of the fields.

I have the honor, &c.,

Sir,

H. NEWILL,

Director of Revenue Settlement.

Letter from Captain PRIESTLEY, Superintendent of Revenue Survey, dated 31st October 1857, No. 119.

SIR,

1. I have the honor to request to be informed whether it is still intended that the Talook of Volcondapoorum in the Trichinopoly District shall be the one in which Survey operations are to be carried on next year by the survey party under Lieutenant Hessy's orders.

2. The boundaries having been adjusted the year before last, no difficulty is to be anticipated on that head, but it is high time that station markers were dispatched to prepare the Villages for Survey by the beginning of 1858.

3. I trust before the commencement of next year to have received explicit instructions regarding the fields to be measured, even should it have been found impossible by that time to have such plots of ground

marked out, as are to bear one number and the contents of which are to be separately recorded.

I have the honor, &c.,

(Signed) F. J. B. PRIESTLEY, *Capt.*

Superintendent Rev. Survey.

Resolved that the above letter be forwarded as requested, for the consideration of Government.

2. The Board conclude that the Survey of the Volcondapoorum Talook may proceed with the establishment already at Captain Priestley's disposal.

3. The Board see no objection to preparations being made for the Rajahmundry Survey, but they do not anticipate that much can be done till the establishments asked for* have been sanctioned.

* *Bd's. Pro. 9th November* 1857.

4. It will be for the Director of Revenue Settlement to decide as to the details of the procedure in measuring fields, and no doubt he will when on the spot, be able to find means of determining what had best be done.

5. With reference to para. 7, the Board observe that in para. 25 of their Proceedings of 27th February 1854, they permitted the Surveyor to measure round 3 or 4 small fields of that area which was not above 1 acre in "Wet" or 2 acres in "Dry" land, and to enter the sizes of the interior small fields from the Curnum's *accounts*, *if* the sum total as per Curnum's account, corresponded with the area computed by the Surveyor. The Board cannot give authority for the Curnums measuring afresh, unless reported qualified by the Superintendent of Survey. If they can be taught to do this filling up, it will be a great service, but whoever it is that measures, *every* field must be shewn in the map, drawn to scale, and for the correctness of this, Captain Priestley alone is responsible.

(A true Extract.)

(Signed) J. D. SIM, *Acting Secretary.*

Extract Minutes of Consultation, dated 11th December 1857,
No. 128.

1. The Board submit, with their observations, a letter from the Director of Revenue Settlement, reporting the details of his proposition for the commencement of Survey operations in the ensuing season.

Letter to Director of Revenue Settlement, No. 119, dated 31st October 1857.

Para. 2.

Captain Priestley has, it appears, applied to Mr. Newill for instructions relative to proceeding with the Survey of the Volkondapoorum talook in Trichinopoly, the boundaries in which have already been adjusted. He remarks that "it is high time that station markers were dispatched, to prepare the villages for Survey by the beginning of 1858."

2. Mr. Newill shews that the above mentioned talook alone, will not afford sufficient work for the whole season; and he recommends that the remaining dry talook (Torioor) should be included in the field of proposed labour.

3. With regard to the work to be provided for the additional Survey party which will soon be formed, Mr. Newill would commence upon that portion of the Godavery Delta lying west* of the river; and comprising the Mogultoor, Tanookoo, and Woondy Talooks, in the sub-division of Rajahmundry, and the Rellangy and Pentapaud Talooks in Masulipatam, all of which now receive irrigation from the Godavery Annicut.

* *Note.—Not East, as mentioned by Mr. Newill.*

4. The Board see no objection to preparations being made for the Rajahmundry Survey, but they do not anticipate that much can be done until the establishments asked for have been sanctioned.

5. Considering that the dry Talooks of Trichinopoly have been half completed; that the boundaries of one of those not yet surveyed have been already marked out; and that postponing the Survey of that Talook might possibly render it necessary to put the boundary marks down afresh; considering also that the two remaining dry Talooks will afford work for the party now on the spot for one season, after which it can be transferred during the recess to Rajahmundry without loss of time, the

Government sanction Mr. Newill's propositions. They likewise approve of his intention to commence upon the Goodiwada Talook of Masulipatam, (which is irrigated by the Kistna Annicut,) should the non-arrival of the skeleton-triangulation-sheets of the Grand Trigonometrical Survey from Calcutta, cause any delay in commencing with the Talooks previously specified.

6. The Government have already passed orders on the Board's Proceedings dated 27th November, No. 4222, replying to Extract Minutes Consultation 23d Idem 1857, No. 1204, Revenue Department, *Para.* 6. on the receipt of the revised scheme of Establishments called for in those orders, the Government will be prepared to take steps to enable Mr. Newill to undertake the demarcation of boundaries for the Godavery Survey party.

7. The Government request that this order may be at once communicated to Captain Priestley.

(Signed) H. FORBES,

Acting Secretary to Government.

Extract from the Proceedings of the Board of Revenue; dated 18th December 1857, No. 4570.

Read the following letter from H. Newill, Esq., Director of Revenue Settlement, dated 7th December 1857,* No. 81.

* *In Con.* 18*th Dec.* 1857.

SIR,

I have the honor to acknowledge the receipt of your letter of 27th Ultimo, enclosing copy of Extract of Minutes of Consultation under date 23rd Ultimo, calling for an explanation of the data on which the present scheme for Establishments has been founded with reference to the calculation therein made of the probable expenditure being in excess of the original Estimates.

2. In reply, I beg leave to state that the Survey Department having hitherto been confined to one branch and no settlement operations whatever having been commenced, I thought it best to send up the Statements in their incomplete state, leaving it to further experience to determine what should be considered as standards of Establishments for the Survey and Assessment Departments. As it seems however to be

the wish of Government to place before the Government of India a more comprehensive estimate, to take in the whole of the operations throughout the Presidency, I have in communication with the Superintendent of Revenue Survey given the subject a further consideration with this view, and in concurrence with the advice of the Board in para. 2 of your letter, to send in an estimate for a full Establishment at once, and then to employ such portions of it as may be required to begin with. I beg to submit revised Statements in the Appendix.

Nos. 1 to 7.

3. The Board however seem to think that the expenditure for the Survey should be estimated at Rupees 1,75,000 per annum for 4 parties, and Captain Priestley has complied with the requisition to this effect, but from his letter of 1st Instant, forwarding it (copy of which is appended) he is evidently embarrassed as to how to carry on his operations on this scale, and has not entered the full details of the establishment. He justly observes that the organization of the Public Works Department, and the making the salaries of its Officers and their Subordinates, more adequate to their duties, render it imperative to raise those of the higher Subordinates of his own department; and upon reflection it will I think, be apparent that 200 Rupees a month* is not adequate for the European Assistants, who will probably not be Commissioned Officers drawing Military pay in addition. In Bombay there appear to be three classes of these Assistants receiving 250, 375, and 500 Rupees per mensem, *in* Bengal the salaries are lower, but there are not the same details of work.

* Proposed in original Estimate. Vide para. 37 Ex. M. C. 14th August 1855.

4. A further reason may be urged for placing these salaries on a higher standard, which is the circumstance of the additional labor and superior skill that will be required in connecting the Revenue Survey with the former Trigonometrical operations, and making the work a perfect one, as resolved in Extract Minutes of Consultation under date 14th August 1857, No. 815.

5. The Government in para. 37 of Extract Minutes of Consultation, 14th August 1855, in placing before the Government of India and the Honorable Court of Directors, the Estimate for the Survey, state distinctly that, while taking "for the purposes of the present computation" an establishment of the strength granted for South Arcot, they intend to be guided by the experience of the Surveys of Up-

per India as respects both the number of Deputies'-parties and the strength and salaries of their establishments, and in the following para. while stating that the Survey with such establishments would occupy the period of 22 years, it does not seem to be intended that it should necessarily, or would most conveniently be spread over this extended period. I trust therefore that instead of insisting, as suggested by the Board, that the estimate should be confined to the sum apportionable to one out of the 22 years, a comprehensive plan embracing the whole work within a more limited time, and the total estimated-amount will be entertained; particularly as there is every advantage to be gained in shortening the period of operations, and none (that I am aware of) in delaying it; and it seems false economy to curtail the expenditure per annum at the disadvantages of employing inferior Agents on a lower salary, who may be expected to perform their work less perfectly, and of limiting the number of minor subordinates within what may be properly controlled by the Superintending Officers. This principle of an extended and comprehensive field of operations, is fully advocated in para. 36 of Extract Minutes of Consultation 14th August 1855.

6. In submitting his communication of 1st Instant, Captain Priestley refers me to Appendix* D. of his Report for 1856, for a scale of salaries suited for securing qualified persons, and it is from this that the present Statement (Appendix No. 3,) has been compiled, with the addition of Deputy Superintendent's salary and other items required to render it complete. The experience already derived in the past 3 years' operations enables Captain Priestley now to put forth his recommendation with confidence. The following gives at one view the proposed expenditure for the establishments of the Superintendent's and 4 Deputies' parties.

* Appended also to his letter.

	Monthly. Rs.	Annually. Rs.
Salary &c., of Superintendent.........................	1000	12,000
His Office Establishment, Vide Statement No. 4...	880	10,560
	1,880	22,560
1. Deputy's party including salary and allowances of himself and Establishment, as per Statement No. 3..		54,840
4. Such parties..		2,19,360
Do. including the Superintendent and Establishment making the grand total............................		2,41,920

7. Captain Priestley calculates the annual work of each party at the rate of 60 acres a day for each Aumeen for 260 working days with the provision that a minimum of 2 acres for dry and 1 for wet lands should be followed in the measurement of fields as already sanctioned. This gives 1,100 square miles for the year including about 11 per cent. of wasteland, and for the 4 parties a total of 4,400 square miles. The above estimated expenditure divided by this gives Rupees 55 per square mile as the cost of the Survey under 4 parties and a Superintendent organized on the above plan and is considerably within the estimated rate of Rupees 64 per square mile given in para. 38 of Extract Minutes of Consultation, dated 14th August 1855, and will admit of the whole extent of 60,000 square miles being surveyed within the estimated total of Rupees 38,40,000 with a fair margin for contingencies. The work would thus occupy 14 years. The cost of 2 parties* only under the Superintendent will be Rupees 60 per square mile, and that of 3† will amount to Rupees 56½ per square mile, so that the estimate should not be exceeded in the more limited operations.

	* 54,840	
	2	
	1,09,680	2 Parties.
	22,560	Supt.
2,200)	1,32,240	Total.
	60	
	† 1,64,520	3 Parties.
	22,560	Supt.
3,300)	1,87,080	Total.
	56½	

8. The cost of instruments, &c., has not been included in the above calculation, both because this item formed no part of the original estimate as particularized in para. 37 of the above Extract Minutes of Consultation, and also because the value cannot be correctly ascertained at the present time.

Appendices Nos. 5&6.

9. The Lithographic Establishment in like manner formed no part of the original estimate and is now calculated at Rupees 751 per mensem, or Rupees 9,012 per annum, or say for 15 years Rupees 1,35,180. Captain Priestley expects that when the Press is in full operation he will be able to dispense with several draughtsmen which will much reduce the charge for this work, the importance of which in turning the Survey to the best account cannot be too highly valued. The cost will on the above calculation and with the reduction anticipated probably be much within 2 Rupees a square mile which will be well

Appendix No. 7.

laid out in perpetuating the results of the Survey operations in the convenient forms of Village, Talook and District Maps.

10. It may be objected to the preceding calculations that they are based upon a larger standard of work than has so far been actually attained by the party employed in South Arcot and Trichinopoly. Captain Priestley in his Survey Report for 1856 has fully explained the causes of the work coming short of the extent calculated. It will appear from paras. 14 to 18 that the minimum of 2 acres of dry and one of irrigated land was not observed in the measurement of the fields, and that this rule is of little help to him with the conditions attached to it.* The Ameens in many cases† measured more than the prescribed number of fields, though from the minute size of them, the area of 60 acres per diem was not attained. The labor is there shewn to have been increased in the ratio of 3 to 5 by surveying and plotting each field even down to ·005‡ of an acre, and that the total area of the Survey would have come up to 700 instead of 450 square miles, or to about the prescribed standard, had the smaller fields been excluded from detail measurement under the general rule above noticed. Other serious difficulties were also experienced in the fields not being marked out for Survey and thus occasioned much loss of time to the Ameens. The lapsed jaghires and other localities selected for Survey were also often in detached portions instead of presenting a compact field for operations. There was also a difficulty of retaining Servants permanently on what is so far considered only a temporary establishment. Arrangements will now be made for the demarcation of boundaries ready for the Survey, and the Survey Establishment will assume a more permanent character, and I shall also be prepared after further enquiry and conference with the Superintendent of Survey to propose the best means of getting over the main difficulty of adjusting the details of the minute fields without subjecting them to professional Survey by his Department, which does not appear essential for the grand object in view in newly apportioning the land tax; and, these difficulties being overcome, there seems every prospect, judging from the result already obtained under such disadvantageous circumstances, that the estimated standard of work will be reached.

* Para. 15.

† Para. 17.

‡ Para. 18.

11. Sanction for 2 parties and for the Superintendent's office is required for the approaching working season; and a third if not also a

fourth party may probably be organized in the following year. The full amount of estimate will not be expended at first but gradually arrived at as operations extend and the agency becomes fully qualified, and in the meanwhile discretion is solicited for the Superintendent of Survey to apportion the salaries as he finds best suited to circumstances, as was permitted by the Government of India in their former sanction dated 8th September 1854. The Statement submitted with the Board's letter to Government of 9th Ultimo, will give an estimate of what is proposed to be expended, in the first instance, if such is required.

12. With regard to the establishment at first proposed for the settlement operations I may explain that while the full standard was set down in some items, a limited arrangement only was provided for in others in which further experience was more particularly wanted. Following however the course I have pursued with regard to the Survey branch of estimating at once for the full establishment required, I have accordingly made some revision of the former Statement in the following respects. To enable me to have the selection for the head of the native office from the best and most experienced individuals in revenue matters and to retain an incumbent without the fear of his being drawn away for promotion to a Head Sheristadarship in a Collector's office. I have introduced the salary of the latter grade instead of the less amount before set down and about which my misgivings were stated in my letter of 5th Ultimo. I should not perhaps be right in excluding myself from the choice of the best aid that is to be had in carrying out measures of so important and permanent a character; but at the same time I shall not avail myself of the higher standard of salary, if a less amount will secure the object.

13. I have moreover omitted the temporary arrangement for the demarcation of boundaries and instead have added to a Deputy's party, a 3d Supervisor and Classifiers, whose services may be employed partly in the work in question and partly in classifying the land. In para. 61

of my letter of 28th October last, I intimated the probability of a Deputy or Superintendent being able to work a 3d Supervisor's party, and this will be the more easy if a portion, say half, is engaged in marking the boundaries, leaving the other half to the work of classifying. In the first instance however I would still propose that the demarcation should be conducted by the Collector, and the places of the servants of his establishment engaged in it be filled up from this estimate, as otherwise the Deputy or Superintendent must be appointed with his establishment before the survey commences, and he will not be economically employed in the interval between the fields becoming ready for assessing. When the settlement is fairly begun the Deputy may assume the supervision of the demarcation of future work.

14. I have endeavored to make the establishment efficient and to fix a sufficient scale of pay to secure ability and to remove pretext for exaction and corruption : somewhat lower rates of salary will in the first instance be given in some cases, advancement being made dependent on good qualifications and conduct and increase of work as the operations proceed. I trust a wide discretion will also be allowed in appropriating the sanctioned amount in the way best suited to meet the, at present, untried circumstances that may arise. Having no standard of reference in proposing the establishment, and the work it is to be engaged upon being yet uncommenced, it must in a great measure be considered experimental, but I hope it will be found sufficient, though experience may dictate a better distribution of the expenditure.

15. The following then may be stated as the items of the proposed expenditure for the settlement, first premising that in para. 63 of my letter of 28th October, I pointed out that less than a Sub-Collector's pay would not secure qualified Deputies for any length of time, and that in accordance with the views of the Board of Revenue in their letter to Government of 9th ultimo, 1,200 Rupees has been estimated for their salary.

Director's Establishment.	Monthly.			Annually.		
	Rs.	A	P.	Rs.	A	P.
Salary..............................	3,016	10	8	36,200	...	...
Tentage..............................	87	8	...	1050	...	...
Extra Do. 4 Months....................	157	8	...	630	...	...
Office Establishment as per detail Statement, (No. 1. Appendix)........	1,582	...	...	18,984	...	...
Extra on Circuit 4 Months (Do.)........	104	...	...	416	...	...
	4,947	10	8	57,280	...	...
Superintendent's Party.						
Salary..............................	1,200	...	...	14,400	...	...
Tentage..............................	87	8	...	1,050	...	...
Extra Do. 6 Months....................	157	8	...	945	...	...
Office Establishment as per detail Statement No. 2..........................	507	...	...	6,084	...	...
Classing Do..................Do.........	2,076	...	...	24,912	...	...
Total...........	...	...	...	47,391	...	...
4. Such parties would be..................	...	...	...	1,89,564	...	...
Total Director's Establishment and 4 parties..............................	...	...	...	2,46,844	...	...

16. To this are to be added travelling batta to public servants of the Director's and Superintendent's Offices while on circuit, and suderwared and other contingent charges, which cannot be calculated with any degree of accuracy, but taking roughly Rupees 10,000 for these items, the total per annum for the central office and 4 parties will be Rupees 2,56,844.

17. But the question now comes as to what extent of work can be accomplished by this full establishment. In my letter of 28th October, I did not enter into this, beyond stating my conviction that the Establishment proposed would accomplish the work at a cost not exceeding the estimated rate of 10 Rupees per 100 acres, or 64 Rupees per square mile given in para. 42 of Extract Minutes of Consultation dated

14th August 1855. I proceed to show now what work may reasonably be expected from the establishments as now proposed.

18. The number of classifiers under a Superintendent's control is 60, but as explained in para. 13 half a Supervisor's party or 10 will be employed in demarcation duty, thus leaving 50 for the assessing operations. Deducting one fourth of the whole year for unoccupied periods and Sundays there remain 275 working days. The assessing process will doubtless be admitted to be less responsible task than the Survey measurement, and 60 acres per diem may be taken as a reasonable average for the classifiers. This will give 8,25,000 acres, or about 1,290 square miles per annum for each party. Four such parties will thus do 5,160 square miles, or taking only 5000* square miles, the cost† would be about 51 Rupees a square mile including also the expense of establishment for the demarcation of boundaries, which is much within the estimate of 64 Rupees per square mile. If only 3 parties‡ are entertained the cost of these and the Director's establishment together will give Rupees 55 per square mile; including also the cost of the establishment for marking the boundaries, which may perhaps be considered as belonging rather to the survey charges. While only 2 parties may be employed the cost will be about 63 Rupees§ per square mile still within the estimated limit, but this calculation is too high as it is based on the full establishment which will not be entertained.

* Viz. 1250 miles for each party.

† 5,000) 2,56,844 (51·37

‡

Director.	57,280
3 Parties.	1,42,173
4/5 Contingencies.	8,000
	2,07,453
1,250 × 3 = 3,750)	55·34

§

Director.	57,280
2 Parties.	94,782
3/5 Contingencies.	6,000
	1,58,062
1,250 × 2 = 2,500)	63·2

19. If it is thought that the full standard of work will not be attained at once, it may be urged that the same protracted difficulties do not present themselves in assessing as in the first operations of the Survey, and the full complement of establishment will be gradually made up both in the number of the servants and in

the amount of salary in some cases as above explained. The rate of cost for the settlement is raised by the demarcation of boundaries being included, and more particularly from the general direction of the two Departments being vested in the Director of Revenue Settlement, without any portion of the charge of his establishment being allotted to the survey.

20. It may be observed that the estimated work of an assessing party being 1,250 square miles per annum while that of a Survey party is only 1,100 square, the former will overtake the latter, but it is to be remembered that the assessing establishment being entirely new, its operations will be more limited at first and that also more than a year's work is ready for a party. Captain Priestley has also in contemplation the eventual enlargement of his Department so as to take in as much as 1,400 square miles per annum for a party, if the experience gained with that now proposed, shows this to be expedient. There will therefore be no difficulty in thus and otherwise adjusting the establishment of the two branches so as to work paripassu.

Vide Appendix E. of his Survey Report 1856.

21. Sanction should be obtained for (and 2 settlement parties) and (the Director's establishment) one of the latter may immediately take up the surveyed portions of Trichinopoly and South Arcot, and the other may also be organized some months later after the Survey has started in Rajahmundry. It is difficult to define what portion of the establishment will be required at once, as it will be filled up progressively and in a great measure proportionately to the resultant work.

22. The cost of boundary marks has not been included as it has already been proposed that it should be borne by the ryots under the provisions of Act XX. of 1855, though it may be conveniently advanced by Government in the first instance.

23. The Board in para. 16 of their letter of 9th Ultimo, suggested that the Lithographic establishment may lie over for the present; but I would observe that it is of immense advantage that the Village

Maps should be lithographed at once for the parts already surveyed, as they will be useful for the classifiers and save the original, of which there is now no copy, from being worn out in the assessing operations.

24. The items requiring sanction at present may be summed up as follows :—

For Settlement.	Per Annum. Rs.	A.	P.
Director's salary already sanctioned........................			
Establishment..	19,400	0	0
1. Deputy or Superintendent's party. { Salary 14,400 / Estabt. 30,996 }	45,396	0	0
1. Do. as above..	45,396		
Tentage and Extra tentage of the higher grade to be allowed also to the Director and 2 Deputies when on Circuit..			
Batta to Office Establishment of Director and 2 Deputies on Circuit..			
Contingent charges, office furniture, &c........................			
For Survey.			
Superintendent Revenue Survey, salary already sanctioned..			
Office Establishment	10,560		
1. Deputy Superintendent, salary and establishment......	54,840		
1. Do...............Do..	54,840		
Lithographic establishment..	9,012		
Cost of Instruments for 2 parties particularized in Appendix No. 5..			
Camp Equipage, &c., for 2 parties..................................			
Appendix No. 6..			
Contingent charges..			

Office of the Director of Revenue Settlement, Madras, 7th December, 1857.

I have the honor to be, &c.,
(Signed) H. NEWILL,
Director of Revenue Settlement.

No. 1.

Proposed Establishment for Director of Revenue Settlement.

			Rs.	A.	P.	Rs.	A.	P.
Vernacular.	1	Manager......	250	0	0			
	1	Assistant Do. and Indexer.........	120	0	0			
	1	Examiner.....	80	0	0			
	1	Head Clerk.........	70	0	0			
	1	Do.	50	0	0			
	1	Do.	40	0	0			
	1	Computer.....	35	0	0			
	1	Writer...	30	0	0			
	1	Do.	24	0	0			
	1	Do.	17	0	0			
	1	Do.	15	0	0			
	1	Do.	12	0	0			
	1	Record keeper..	80	0	0			
	1	Translator in 3 languages.	80	0	0			
	1	Chief Accountant......	280	0	0			
	1	Deputy Accountant.	75	0	0			
	1	Assistant......	50	0	0			
	1	Do.	35	0	0			
	1	Do.	25	0	0			
	1	Do.	20	0	0			
	1	Do. at 15	15	0	0			
	1	Record keeper.....	45	0	0			
	1	Moochee..	10	8	0			
	1	Do.	8	0	0			
	1	Dufterbund.	10	0	0			
	1	Sweeper...	4	0	0			
	1	Jamadar......	17	8	0			
	12	Peons at 7.	84	0	0			
		Total per mensem......	......	...	...	1,582	0	0
		Total per annum......	......	...	...	18,984	0	0
		Extra Establishment.						
		While on Circuit.						
	1	Dresser or Apothecary......	50	0	0			
	1	Duffadar......	12	0	0			
	6	Peons...	42	0	0			
		Total......	104	0	0			
		For four months......	......	...	...	416	0	0
		Total per annum......	......	...	...	19,400	0	0

No. 2.

Proposed Establishment for each Deputy or Superintendent of Seettlement.

No.	Designation				Rs.	A.	P.	Rs.	A.	P.
1	Native Assistant........				140	0	0			
1	Head Goomastah...				50	0	0			
1	Do.				35	0	0			
1	Do.				25	0	0			
2	Do. 15...				30	0	0			
1	Head Writer......				35	0	0			
1	Do.				15	0	0			
1	Translator...				40	0	0			
1	Moochee......				9	0	0			
1	Duffadar..				15	0	0			
6	Peons at 7....				42	0	0			
6	Do. at 6.				36	0	0			
1	Dresser........				35	0	0			
	Total........							507	0	0
1	Supervisor.				135	0	0			
1	Goomastah.........	30	0	0	60	0	0			
2	Do. at 15	30	0	0						
8	Classifiers at 24......	192	0	0						
8	Do. at 20	160	0	0						
2	Head Classifiers at 30	60	0	0						
2	Do. Do. at 28	56	0	0	468	0	0			
8	Peons at 6......				48	0	0			
								711	0	0
1	Supervisor....				120	0	0			
3	Goomastahs as above.				60	0	0			
20	Classifiers do. ..				468	0	0			
8	Peons....				48	0	0			
								696	0	0
1	Supervisor....				100	0	0			
1	Goomastah.	25	0	0	53	0	0			
2	Do. at 14...	28	0	0						
20	Classifiers as above.				468	0	0			
8	Peons.........				48	0	0			
								669	0	0
	Total......							2,076	0	0
	Grand Total......							2,583	0	0
	Per annum......							30,996	0	0

No. 3.

Establishment for a Deputy Superintendent's Survey party.

No.	Description	Rate	Rs.	A.	P.	Rs.	A.	P.
	Deputy Superintendent 500 Rupees with 75 Rupees travelling allowance......		575	0	0			
	Allowance to Do. to cover contingent Expenses...		100	0	0			
			—	—	—	675	0	0
1	European Assistant 325 by 75 travelling allowance.		400	0	0			
1	Do. 225 by 75 do.		300	0	0			
			—	—	—	700	0	0
1	Head Surveyor	at 100	100	0	0			
1	Do. do.	at 90	90	0	0			
1	Do. do.	at 80	80	0	0			
1	Do. do.	at 70	70	0	0			
			—	—	—	340	0	0
	N. B. Head Surveyors to enter at 50 to receive 60 the second year.							
1	Deputy Surveyor	at 50	50	0	0			
3	Do. do.	at 40	120	0	0			
4	Do. do.	at 30	120	0	0			
1	Detail Surveyor	at 25	25	0	0			
3	Do. do.	at 20	60	0	0			
			—	—	—	375	0	0
10	Surveyor Ameens	at 14	140	0	0			
30	Do. do.	at 10	300	0	0			
10	Goomastahs	at 9	90	0	0			
10	Do.	at 8	80	0	0			
20	Do.	at 7	140	0	0			
			—	—	—	750	0	0
1	Office Manager	at 75	75	0	0			
1	Head Writer and Computer	at 35	35	0	0			
4	Do.	at 25	100	0	0			
3	Do.	at 20	60	0	0			
2	Do.	at 15	30	0	0			
			—	—	—	300	0	0
1	Head Draughtsman	at 50	50	0	0			
1	Do.	at 35	35	0	0			
2	Do.	at 30	60	0	0			
3	Do.	at 25	75	0	0			
4	Do.	at 20	80	0	0			
5	Do.	at 15	75	0	0			
			—	—	—	375	0	0
	Carried forward..............					3,515	0	0

				Rs.	A.	P.	Rs.	A.	P.
	Brought forward......			....	...	...	3,515	0	0
1	Duffadar	at	8	8	0	0			
2	Do.	at	7½	15	0	0			
7	Head Peons	at	6	42	0	0			
3	Peons	at	6	18	0	0			
3	Do.	at	5	15	0	0			
4	Do.	at	4½	18	0	0			
8	Do.	at	4	32	0	0			
15	Measuring Peons	at	5	75	0	0			
24	Do. do.	at	4½	108	0	0			
16	Do. do.	at	4	64	0	0	395	0	0
1	Head Station Marker	at	7	7	0	0			
12	Do. do.	at	5	60	0	0			
12	Do. do.	at	4½	54	0	0	121	0	0
1	Moochee	at	5½	5	8	0			
3	Do.	at	4½	13	8	0			
1	Blacksmith	at	5	5	0	0			
1	Chuckler	at	5	5	0	0	29	0	0
	Measurement allowance, &c.....		......	....	...	...	630	0	0
	Total for 1 Month.......			....	...	...	4,690	0	0
	Deduct for recess of 2 Months for 12 Months...			....	...	...	56,280	0	0
	Measurement allowances.........		......	1,260	0	0			
	4 Head Surveyors travelling allowance.		......	80	0	0			
	30 Peons......		....	100	0	0	1,440	0	0
	Grand Total......			....	...	...	54,840	0	0

NOTE.—Travelling allowances are included in the above rates of pay.

No. 4.

Proposed Office Establishment for the Superintendent of Revenue Survey.

		Rs.	A.	P.	Rs.	A.	P.
1	Office Assistant (as Draftsman).....	200	0	0			
1	Do. Do. (as Computer)......	150	0	0			
3	Draftsmen at 40 Rupees......... ...	120	0	0			
1	Manager........	100	0	0			
5	Examiners and Writers..	120	0	0			
1	Copying Clerk..........................	20	0	0			
1	Record Keeper..........................	38	8	0			
2	Assistant Do. at 12½.................	25	0	0			
1	Head Moochy..........................	17	8	0			
6	Assistant Do.	35	0	0			
1	Duffadar.................................	12	0	0			
6	Peons at 7................................	42	0	0			
	Monthly..........................	...	...		880	0	0
	Yearly..........................	...	...		10,560	0	0

No. 5.

Estimated Scale of Instruments for one "Party."

NAMES OF INSTRUMENTS.	No. of each.
Planimeter...	3
100 feet chains iron with arrows.	15
Chains Gunter's, Do.	100
Compasses beem wooden...	2
Do. Large with pen and pencil legs brass pairs...	6
Do. Small brass pairs...	60
Do. Improved prismatic with tripod stands.	9
Circumferenters with tripod stands.	9
Cross staves.	15
Optical squares...	6
Color boxes......	2
Color branches of sizes......	24
Water branches......	2
Artificial horizon......	1
Barometer mountain......	1
Bars steel graduated 11 feet engraved and divided into feet, inches and tenths, for comparing Gunter's chains.	4
Drawing pens.	20
Road and dotting pens each 2...	4
Drawing pins for fastening maps to boards...	100
Flag staves.....	50
Gunter's scales 2 feet brass.	2
Plotting and off set scales 16 inch to 1 mile wooden.	12
Mathemetical Instruments including proportional compasses in cases.	6
Opisometers.	6
Magnet bars in box.	1
Protractors brass rectangular.........	10
Do. ivory Do....	12
Perambulators Everest or Waugh's pattern....	1
Referring lamps with sight vane and plummet.	1
Rings spare for chains.	200
Rules brass flat 3½ feet heavy.	1
Do. Do. 2½ feet.	1
Do. Ebony flat 3 feet or 4 feet.	1
Do. Parallel 18 inches brass on rollers....	1
Do. Do. 12 " "	1
Do. Do. 2 feet ebony with bars.	1
Do. Do. 1 foot Do.	1
Do. Do. 6 inches Do.	6
Tapes measuring.	2
Telescopes reconnoitering	1
Theodolites 7 inches transit.	1
Do. 5 Do. Do.	1
Do. 6 Do. Everest's Pattern.	3
Do. 5 Do. Do.	5
Tracing Glass.	1
Thermometers.	1
Sectant in box.	1
Heliotropes for Hilly country and Minor triangulation.	4
Plane tables for Hilly country and Minor Triangulation.	6
COLORS EXTRA SIZE.	
Prussian Blue Lake, Gamboge each 6...	18
Light Red Burnt umber each 1....	2
Burnt Senna.....	12

No. 6.

Estimated Scale of Camp Equipage, Books and Office Furniture for one "Party."

Names of Instruments.	No. of each.
Camp Equipage.	
Tents Hill or Staff Serjeants lined with chintz	3
Do. Office double poled large do.	1
Do. do. single poled Captains do.	1
Tar paulins Waxed	6
Books.	
Logarithm (Chambers, Youngs or La Landes)	1
Instructions on Topographical Survey by Col. Waugh	1
Mathematical Tables Huttons	4
Manual of Surveying	1
Nautical Almanac for the current Year	1
Traverse Tables by Colonel Boileau	9
Table of Trigonometrical Survey Computations	1
Table of Land Measure	1
Pay and Audit Regulation Code of 1845	1
Multiplication Tables by Major Smith	6
Office Furniture.	
Teakwood Tables on trestles 6 by 3	6
Do. do. do. 4 by 3	6
Large and small Boxes for Office Stationary and Records	8
Office Stamp (brass)	1
Chupprasses' Belts, &c.	50
Office Benches	10
Native Accountants' Desks	20

No. 7.

Estimate for Lithographic Establishment.

			Rs.	A.	P.	Rs.	A.	P.
1	Head Lithographer and Draughtsman......................		90	0	0			
						90	0	0
1	Do.	Draughtsmen and	60	0	0			
1	Do.	Lithographers competent	55	0	0			
1	Do.	to do the neat work	50	0	0			
1	Do.	thoroughly..................	45	0	0			
						210	0	0
	For Tracing Work.							
2	Draughtsmen...	at 35	70	0	0			
2	Do.	at 30	60	0	0			
3	Assistant Draughtsmen...	at 25	75	0	0			
3	Do.	at 20	60	0	0			
3	Do.	at 15	45	0	0			
7	Do.	at 10	70	0	0			
4	Do.	at 5	20	0	0			
						400	0	0
	Printers.							
1	Head Printer.........	....	20	0	0			
1	Printer......	....	14	0	0			
2	Pressmen... at 6	....	12	0	0			
1	Pressman... at 5	....	5	0	0			
						51	0	0
		Per Mensem...				751	0	0
		Per Annum...				9,012	0	0

From Captain Priestley Superintendent of Revenue Survey; to H. Newill, Director of Revenue Settlement, dated 1st December, 1857.

SIR,

In compliance with the call made in your letter of the 28th Ultimo, I have the honor to enclose a revised estimate in which battta travelling and measurement allowances are included.

I must confess my inability to estimate for stationery, instruments and office tents out of the sum sanctioned. In para. 75 of "Selections from Records of the Madras Government No. IX." it is expressly stated that there will be a charge for stationery and also that it is presumed Instruments will be supplied by Government.

In the establishment mentioned at the bottom of page 11 of the "Papers relating to the proposed General Survey" a sum of Rs. 37-8 alone is mentioned for contingent expenses which is only about enough to pay for petty repairs and trifling casual expenses. In the revised estimate it is reduced to about Rupees 27 per mensem.

The cost of lithorgraphy also must be a separate item. The maps can of course as hitherto be lithographed in the Chief Engineer's Office, but as the expense must be borne by Government in whatever office this work is performed, I think it is hardly necessary to dwell on the advantage of the process being carried on under the direction of the Superintendent of Revenue survey.

I regret much the necessity of reducing the rates of pay proposed, more particularly those of the European Assistants.

I beg to direct attention to the fact that the rates proposed in 1855 were sufficient when an Officer in the Public Works Department received Rs. 190, and trust that as it was considered necessary so greatly to increase the pay of the Officers composing a body so numerous as that of the Department Public Works, a reconsideration of the subject will induce Government to sanction the increased allowances to the European Assistants employed in the survey who when the 4 parties are completed will only number eight individuals.

I venture to forward a copy of the Establishment marked D in the appendix of my report for the year 1856.

By sanctioning three such parties, the pay of the several ranks will be raised sufficiently to render entering the Department an object to eligible men of all ranks; at the same time the expense per square mile will be very moderate.

In Bengal, unless I have been misinformed, a surveyor has permission to regulate his expenditure, curtailing it under some heads where an increased outlay is necessary in others, provided that he does not exceed the sum sanctioned; this discretion should most certainly be granted in Madras, as tying him down and restricting him to rules for every petty detail will inevitably have the worst consequences.

I have the honor to be, &c.,

(Signed) F. J. B. PRIESTLEY, *Captain,*

Superintendent Revenue Survey.

Revised Estimate for Superintendent and four Deputies including Establishments.

		Rs.	A.	P.
1	Superintendent, ...	1,000	0	0
	Establishment,...	600	0	0
4	Deputies, ...	2,500	0	0
8	Assistants, ...	1,600	0	0
12	Head Surveyors, ...	960	0	0
36	Deputy and Detail Surveyors, ...	1,100	0	0
120	Ameens, ...	1,230	0	0
120	Goomastahs, ...	960	0	0
4	Head Writers and Computers, ...	200	0	0
4	Do. Draughtsmen,...	140	0	0
36	Writers and Computers, ...	720	0	0
36	Draughtsmen,...	720	0	0
412	Peons and Measurers, ...	1,846	0	0
	Measurement Allowance, ...	1,600	0	0
	Total Monthly......	15,176	0	0
	For 12 Months......	1,82,112	0	0
	Deduct Allowance......	3,428	0	0
	Nett......	1,78,684	0	0
	Sanction......	1,80,000	0	0
	Contingencies...	1,316	0	0

DURING RECESS.

Deductions.

	Rs.	A.	P.
Head Surveyors tentage, ...	120	0	0
Deputy and detail Surveyors' travelling allowance, ...	110	0	0
Writers & Computers do. ...	72	0	0
Draughtsmen do.	72	0	0
Pay of Peons on leave, ...	250	0	0
Measurement allowance, ...	1,600	0	0
Total......	2,224	0	0
	510	0	0
For 1 Month...	1,714	0	0
For 2 Months...	3,428	0	0

ADDITIONS.

	Rs.	A.	P.
Ameens' compensation for Measurement allowances.	510	0	0

Proposed Survey Establishment, Appendix D in report for 1856.

No.	Description	Rs.	A.	P.	Rs.	A.	P.
1	European Assistant 325 by 75 (travelling allowance.)...	400	0	0			
1	Do. 225 by 75 (do.)........	300	0	0	700	0	0
1	Head Surveyor at 100	100	0	0			
1	Do. do. at 90	90					
1	Do. do. at 80	80					
1	Do. do. at 70	70			340	0	0
	N. B. Head Surveyor's to enter at 50 to receive 60 the second year.						
1	Deputy Surveyor at 50	50					
3	Do. do. at 40	120					
4	Do. do. at 30	120					
1	Detail Surveyor at 25	25					
3	Do. do. at 20	60			375	0	0
10	Surveyor Ameens at 14	140					
30	Do. do. at 10	300					
10	Goomashtahs at 9	90					
10	Do. at 8	80					
20	Do. at 7	140			750	0	0
	Office Establishment.						
1	Manager at 75	75					
1	Head Writer and computer at 35	35					
4	Do. at 25	100					
3	Do. at 20	60					
2	Do. at 15	30			300	0	0
1	Head Draughtsman at 50	50					
1	Do. at 35	35					
2	Do. at 30	60					
3	Do. at 25	75					
4	Do. at 20	80					
5	Do. at 15	75			375	0	0
	Carried forward.....	...	...	...	2,840	0	0

Proposed Survey Establishment, Appendix D in report for 1856.

				Rs.	A.	P.	Rs.	A.	P.
			Brought forward....	....	...	...	2,840	0	0
1	Duffadar	at	8	8	0	0			
2	Do.	at	7½	15					
7	Head Peons	at	6	42					
3	Taneen Do.	at	6	18					
3	Do. Do.	at	5	15					
4	Do. Do.	at	4½	18					
8	Do. Do.	at	4	32					
15	Measuring Do.	at	5	75					
24	Do. Do.	at	4½	108					
16	Do. Do.	at	4	64					
							395	0	0
1	Head Station Marker	at	7	7					
12	Do.	at	5	60					
12	Do.	at	4½	54					
							121	0	0
1	Moochy	at	5½	5	8	0			
3	Do.	at	4½	13	8	0			
1	Blacksmith	at	5	5	0	0			
1	Chuckler	at	5	5	0	0			
							29	0	0
			Contingent charges 30......	30	0	0	30	0	0
			Total for 1 month......	....	...	...	3,415	0	0
			For 12 months......	....	...	...	40,980	0	0
			Grant for 1⅓ party......	....	...	...	45,980	0	0
			To Ameens measuring allowance......	....	...	...	5,000	0	0

Deduct 10 per cent on the Salaries of Head and Deputy Surveyors and Office men who receive.................................... } Travelling allowance.

30 Rupees per month (during recess) 88 8 0
add 10 Ameens to receive 3 Rupees per mensem and
30 Do. Do. 2 Do. 90.
} Compensation for measurement allowances.

I propose that this establishment be first tried, and if it be found that a Deputy Surveyor General and two European Assistants can control and keep place with even a larger Subordinate Establishment than that it be raised to that marked No. 2.

It will be perceived that no additional expense will be incurred by having 3 Deputy Surveyor General's parties of the strength shewn in No. 1, instead of 4 parties of the strength originally intended.

If a minimum of 2 acres in poonjah and 1 in nunjah be sanctioned the 40 Ameens will at 60 acres a day for 260 working days complete about 975 square miles of fields towards the allowance for which there is a sum of 5,000 Rupees of the 6,300 required.

The difference being added the yearly expenditure will be Rupees 47,280, and allowing 125 square miles of waste not measured as fields to have been included in the Survey, the whole area will amount to 1,100 square miles the expense per square mile being about 43 Rupees allowing a most liberal margin it ought not to exceed Rupees 50.

N. B. Expenses for erecting and superintending boundary pillars are not estimated for.

(True Copies.)

(Signed) H. NEWILL,

Director of Revenue Settlement.

Read also Extract Minutes Consultation 11th December 1857, R. D.

(Here enter No. 1288.)

The letter first noted above was received, and Proceedings drafted previous to the receipt of the Extract Minutes Consultation of 11th December. The Board believe it will not be necessary to delay sending up these Proceedings to Government in consequence of the views expressed by Government in the above Extract Minutes Consultation, and it will only be necessary to modify them so far as regards the question of Demarcation Establishment.

2. In submitting these revised Estimates of Establishment, Mr. Newill has at the Board's suggestion framed them on the requirements of the full and final Establishment, on the understanding that only such portion of it as is now available, be for the present employed, and the full strength brought up gradually as opportunity offers. The con-

sequence is, that the annual amount is even greater than what was before submitted, but in order to bring the sum total to the 76,40,000 Rupees of the Government Estimate in paras. 37 to 43 of Extract Minutes Consultation 14th August 1855, Mr. Newill anticipates that the extent named by Government (60,000 square miles) will be surveyed and assessed in little more than 13½ years, instead of 22 years.

3. As regards the *Survey* the Estimate including 4 full "parties" is 2,41,920 Rupees per annum,† and it is Captain Priestley's opinion that they can survey 4,400 square miles in a year, so that the rate per square mile would be $\frac{241920}{4400}$ or 55 Rupees, instead of 64 the Government estimate; and the period of employ $\frac{60000}{4400}$ or 13·6 years instead of 22. Mr. Newill however observes that until the full Establishment is complete, the rate would be 60 and then 56½ Rupees per square mile; still this "will admit of the "whole extent of 60,000 square miles being "surveyed within the estimated total of "38,40,000 Rupees."‡

† *Para.* 6.

‡ *Para.* 7.

4. Then as regards *assessment* the *full* Establishment estimate including 4 "parties" each headed by a Deputy on 1,200 Rupees a month, is 2,56,844 per annum,§ and Mr. Newill expects they can assess 5,000 square miles in a year, so that the rate per square mile would be $\frac{256844}{5000}$ or 51⅓ Rupees instead of 64 the Government estimate; and the period of employ $\frac{60000}{5000}$ or 12 years, instead of 20 or 22. Mr. Newill however observes that until the full Establishment is complete, the rate would be about 63½ and 55½ per square mile‖ "still within the estimated limit." From which the Board presume that Mr. Newill's Estimate is made to assimilate to that named by Government in para. 42 Extract Minutes Consultation 14th August 1855, namely, 38,00,000 Rupees.

§ *Paras.* 15 *and* 16 *this includes* 10,000 *Rs. per annum for Office travelling batta, and contingencies.*

‖ *Para.* 18.

5. In addition to this, Mr. Newill submits an Estimate for a Lithograhic Press Establishment (not including the value of the Press)

at 9,012 Rupees per annum, or a period of employ of 15 years, making a total of Rupees 1,35,180. So that the whole Estimate of Survey, Assessment,* and Lithography is 77,75,180 Rupees.

Para. 9.

* *The Assessment Estimate includes a few extra hands for Demarcation, a proposal for a separate Establishment will be referred to further on.*

6. Mr. Newill explains† that though the survey is expected to progress at the rate of 4,400 square miles, in the same time that the assessment progresses 5,000, yet that the latter will not overtake the former, inasmuch as the former has already a considerable start; and also because the latter Department will also at first be entirely new to their work.

† *Para.* 20.

7. The cost of the Lithographic Press and the Instruments required for the Survey office furniture and tents, and stationery has not been included. Captain Priestley in his letter to Mr. Newill and forming an enclosure to it, states his inability to furnish an estimate, Captain Priestley being now absent on leave, the Board presume the Government would not desire the submission of these Proceedings to be delayed till a further reference is made to him. A list however of the requisite instruments and office furniture, camp equipage and books accompanies Mr. Newill's letter.

In from South Arcot 21*st February in Cons.* 13*th March* 1857 *sent to Government* 15*th May* 1857.

8. The full *survey* Establishment is framed from that proposed by Captain Priestley in his Report on the operations of 1855-56 (marked D.) It is not quite so expensive as the one last submitted to Government. The only alteration that the Board would suggest, is that the 100 Rupees proposed to be allowed to each Deputy in Captain Priestley's estimate above referred to, for contingent charges had better be kept as a separate item, under the head of "contingent charges," and it would probably cover the expenses of moving office tents, constructing signals, &c., travelling allowances are included in the rates of pay proposed for the several members of the Survey Establishment.

9. The revision of the establishment for *assessment* has been carried much farther than that for survey. Mr. Newill now proposes 4

Deputies instead of 2, and that their pay should be 1,200 Rupees instead of 1,000 per mensem. Both they and the Director to draw the same fixed and extra tent allowance as a Collector. The reason for the extension has not been stated, but the Board conclude that Mr. Newill considers it necessary that to keep pace with the survey there should be 4 assessment as well as 4 survey parties. As regards the rate of allowance, it is not more than what the Board believe will be requisite to retain the services of selected officers for a considerable period.

10. The pay of the 'Chief Accountant' (the Board think the designation of 'Uncovenanted Assistant' would be better) is to be raised from 200 to 280 Rupees a month, in order to bring it to the level of that of a Head Sheristadar.* This seems reasonable.

* *Para.* 12.

11. The small establishment for demarcation formerly proposed, namely 960 Rupees per annum, has now been omitted, and a 3d Supervisor on 100 Rupees a month, and a 3d Classifier on 24 Rupees a month have been added to the former estimate for assessment. The Board with reference to Extract Minutes Consultation under date 11th December 1857, No. 1288, R. D., adverted to at the head of these Proceedings, propose to add a separate Demarcation establishment, but they do not consider it necessary to strike out the extra Supervisor and Classifier from the assessment establishment which does not seem too extensive when compared with that of the survey.

12. In para. 22 Mr. Newill observes that "the cost of the boun-"dary marks has not been included, as it has already been proposed "that it should be borne by the ryots under the provisions of Act XX. "of 1855. This may be conveniently advanced by Government in the "first instance." In his letter of 16th October 1857,† Mr. Newill proposed the recovery of the cost by postponing the reduction of assessment, in which the Board concurred in their Proceedings of 19th Ultimo, to which a reply has not yet been received. The small field marks it is hoped may be made by the ryots themselves, if properly looked after without becoming an actual item of cost. This is just one of those essentials to the efficacy and rapidity of the Survey which it is easy to *order*, but not so easy to see *enforced* without much personal trouble and inspection, and a wholesome exercise of Act XX. of 1855. The Board anticipate difficulties on this point at

† *In Consultation* 20*th Oct.* 1857.

first, which will gradually diminish as the rule becomes widely known and strictly enforced.

13. And in connection with the above subject, the Board will now refer to the Extract Minutes Consultation of 11th December 1857, noted at the head of these Proceedings. It will be observed by Government that the urgent necessity for a proper and efficient mode of Demarcation has been fully anticipated by the Board in their Proceedings of 19th November 1857,* which must have been before Government on the date of the above Extract Minutes Consultation. It will not therefore be necessary for them to dwell on this subject further than to remark that the quotations from Major Tuillier's Manual in the above Extract Minutes Consultation do not exactly refer to a state of things such as exists in the Madras Survey,* inasmuch as whenever the term 'demarcation' occurs in those quotations, it has reference to the demarcation of *village* boundaries, as may be seen by a reference to the Thakbut Map itself to which Government refer. If then a separate establishment is required for these, much more will it be necessary to *ensure* the demarcation of the *field* boundaries. The Board will, as directed, refer the matter to Mr. Newill, though they do not agree in the opinion expressed by him in para. 13 of his letter, now under consideration, where he proposes that "the demarcation should be conducted by the Collector." It is a duty requiring much more personal inspection and constant pushing on of reluctant ryots, than any Collector can undertake to be responsible for.

* *Paras.* 18, 19, 20, 21, 22, 23, 24, 25 *and* 26.

14. The demarcation establishment alluded to by Government in para. 10 of Extract Minutes Consultation of 11th December 1857,* is the very same the Board referred to in para. 21 of their Proceedings of 19th November 1857,* but as explained in para. 23 of the same Proceedings, they were embarrassed on account of the expense. The data of the Government Estimate, do not appear (though Government state they had reference to the North West Surveys) to have contemplated a demarcation Establishment. Mr. Newill's Assessment Establishment may probably have to com-

* The Government consider it to be that originally named for the N. W. Provinces, but a reference to para. 44 of Major Thuillier's Memorandum, in Extract Minutes Consultation 25th July 1857, No. 741, R. D., will shew that it refers to the lower Provinces of Bengal, where the kind of demarcation is more similar to that which will be required in this Presidency, and Major Thuillier's remarks are most opposite.

mence at once on the lands already surveyed in South Arcot and Trichinopoly, and a separate Demarcation Establishment would certainly be desirable.

15. The Government state in para. 9 of the above Extract Minutes Consultation that were sanction immediately granted for the Establishments asked for the consequence would be that they would not find a single day's work ready for them. The Board would not have pressed this early sanction on slight grounds, but they were led from Captain Priestley's earnest desire to get his Establishment, to suppose that he knew best whether he could employ them. The want of a regular Demarcation Establishment though it has hampered his operations hitherto, has by no means prevented them.

16. The Board did not refer to the Estimate made by Government without reference to the Extract Minutes Consultation which contained that estimate,* but they still submit that it was not framed on data suitable to the present occasion. The Government have in para. 4† given an example of the scale under which the estimates under notice were framed, and it is supposed the marginal comparison is for the purpose of shewing that the Establishment proposed by Mr. Newill and the Board is in excess, but an erroneous conclusion may be drawn from such comparisons, unless the *amount of work* performed is noted also. It does not *follow* that an Establishment on 50,000 Rupees is more expensive than one on 30,000 Rupees. As regards the data in the Extract Minutes Consultation of 14th August 1855 to which Government refer the Board, it may be observed in regard to the Estimate for assessment that any data taken from a village settlement, such as that of the North West Provinces, can hardly be said to apply to a Khetwar assessment.

* *The paras. were quoted in the margin of the Boord's Proceedings 27th November* 1857.

† *Extract Minutes Consultation* 11*th December* 1857.

17. The Board trust however that without adhering too much to the experience of surveys in other parts of India so different from that required for Madras, the Establishments now proposed will be suitable. The correctness of Mr. Newill's anticipations that the sum of 76 lacs will not be exceeded rests entirely on the question whether 5,000 square

miles per annum will be surveyed and assessed for 13½ years consecutive work, instead of a rate of 2,800 square miles per annum for 22 years.

18. With the assistance of Field maps one Classifier may get over 60 acres a day, but the Board are inclined to consider this a high average, for a continuance. The number of working days will probably be somewhat less than what Mr. Newill expects,* for time will necessarily be absorbed in preliminary investigations and inspections, and moving from one place to another. Still the expectation is not so sanguine as to lead the Board to require a reconsideration of it.

* *50 Classifiers, each 60 acres a day & 275 working days in the year=82,5000 acres or 1,290 square miles for each of the 4 "Parties." Total 5,160 (say) 5,000 square miles.*

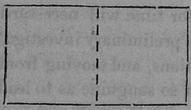
19. With regard to survey, the Board perceive, both from the remarks at the end of the Estimate D. forwarded by Captain Priestley (forming an enclosure in Mr. Newill's present letter) and also from what Mr. Newill has stated in his letter of 13th November 1857† and in para. 10 of his present communication, that Captain Priestley's estimate of 1,100 square miles per annum per "Party" (4,400 square miles per annum "for 4 Parties") contains a proviso which seems to intimate that the Superintendent of Survey is not to be responsible for the measurement or plotting of the small fields which may be comprised by his 1 acre (in irrigated land) or 2 acre (in unirrigated land) "survey blocks."

† *In Cons. 17th November 1857, submitted to Government with Board's Proceedings 17th November 1857.*

20. The Board have explained in the Proceedings marginally noted above, that this was not at all their intention when in their Proceedings of 27th February 1854‡ they proposed these blocks. They consider it indispensable that in every matter connected with the survey, the Superintendent should be the responsible person, and though Curnums may be taught to measure, their work should be under his control. It is a great object also that all the fields of each village should be surveyed simultaneously. If the Curnums' work is to *follow* the professional survey, some error is almost sure to arise, and there will be confusion in the numbering of the fields. The Board would suggest at all events that when the Surveyor measures

‡ *No. IX. Revenue Selections, para. 25.*

his block, he fills up the outline figure of it which is now required in the field book, with the shapes and positions of its component small fields, and their numbers. The figure in the margin represents the space occupied by a field of two acres,* and of subdivisions of $\frac{1}{8}$ acre were filled up by the *eye* of a practical Surveyor, their *content* might be taken from the paper with almost sufficient accuracy; and then a subsequent measurement by the Curnum would be feasible, and might not require on the part of the Superintendent more than an occasional field tested here and there. It may also be observed that the fields will not run so small in the Northern Districts to which the survey will at once proceed. The Board therefore are not disposed to reject Mr. Newill's estimate.



* *A square of* 6,324 *inch to a side, represents on paper one acre. Scale* 16 *inches to a mile.*

21. It is hoped that the Government will approve of the *full* establishment being estimated for at once, leaving it to the presiding officers to enlarge their present establishments as opportunity may offer, till they attain their full strength. The Board would also recommend, in accordance with the wishes expressed by Mr. Newill in paras. 11 and 14 of his letter, that the Director of Settlement, and Superintendent of Survey should each have authority to disburse to persons not fully qualified, but still usefully employed, a portion only of the full allowance, increasing it as the party becomes qualified. This has been found to work very well in the experience of the last few years, and is saving to Government. The Board will also recommend, in consequence of the present duty being on so large a scale, and the Estimates only tentative at best, that the presiding officers have authority to apportion the salaries so as not to exceed the total amount sanctioned for each "Party"; reference having been first made to the Board of Revenue or the Local Government.

(A true Extract.)

(Signed) J. D. SIM, *Acting Secretary.*

Extract from the Proceedings of the Board of Revenue; dated 24th December 1857, No. 4701.

Read the following letter from H. NEWILL, Esq., Director of Revenue Settlement; to J. D. SIM, Esq., Acting Secretary to the Board of Revenue, dated 22d Dec. 1857. No. 97.

SIR,

I have the honor to acknowledge the receipt of the Board's Proceedings of 16th Instant, forwarding me copy of Extract Minutes of Consultation under date 11th Instant, with the request that with reference to paras. 10 and 11 of the latter I will forward an Estimate for a demarcation establishment, and with reference to para 5 an estimate also of the expense of finding the Grand Trigonometrical survey stations.

2. My reply to the requisition was already drafted when the Board's Proceedings of 18th Instant reached me, and I have detained it to include one or two remarks which seem to be called for on this occasion. Regarding the first point above mentioned, I may remark that the temporary establishment proposed in the first instance and commented upon in paras. 6 and 9 of the Government Minute was estimated for on the supposition that the demarcation of boundaries would be undertaken by the Collector's establishment with a few additional hands as an introductory experiment. I beg however to refer the Board to paras. 13 and 18 of my subsequent letter of 7th Instant, submitting revised estimates of establishments in which provision has been expressly made for the demarcation of boundaries by one of* the 3 supervisors' parties under the Superintendent of each settlement branch. The strength and cost of a Supervisor's party is noted marginally. It was suggested that less than the whole strength specified or perhaps half might suffice for the demarcation with such aid as would be received from the local revenue servants for the duty in question, and that the hands not thus required

* Note. This is misapperhended in para. 11 of Board's Proceedings 18th Instant.

		Rs.
1.	Supervisor average rate of party.......	120
3.	Goomastahs 1 at 30 and 2 at 15......	60
4.	Head classifiers at 28 and 30..........	116
16.	Classifiers at 20 and 24.................	352
8.	Peons..	48
	Monthly......	696
	or annually......	8,352

might be employed in the classing operations; and under the general discretion requested for the arrangement of the establishment according as circumstances might require it was contemplated that the number of subordinates might be increased without exceeding the aggregate cost, and that upon emergency a whole Supervisor's party might be employed in the work.

3. In Bombay where the system is also ryotwary. It seems that there was no separate establishment for the demarcation of boundaries; but that this duty was undertaken by the survey establishment which was combined with the Settling Department. Surveyors were deputed to define through the co-operation of the villagers and the aid of the local Revenue officers, the limits of each village and to secure their preservation by proper land marks (Rule 1 page 6 of printed correspondence.) The surveyor also disposed of disputes by arbitration, Rule 5; or with the aid of the Mamlutdar, Rule 6; or in some cases he had the arbitrary decision in his own hands, Rules 3-4 and 7.

Important disputes of old standing were also left to the survey Officers for decision. No special agency either is noticed for the marking of the field boundaries.

4. With the Bombay precedent in view, and the opinion I entertained of what may be accomplished "through the co-operation of the villagers and the aid of the local Revenue officers," in this Presidency as well as in Bombay, I considered it proper to make the trial at least in the first instance of a plan assimilated to that followed in Bombay; while also the original estimate is such as induced me to frame my calculations as low as possible so as to keep within its limits.

5. The Government in para. 11 of the Extract Minutes Consultation under notice are of opinion that "unless it can be distinctly shown that other and cheaper agency will be sufficient, allowance should be made for a demarcation establishment of equal strength to that specified for the North West Provinces and amounting to Rupees 16,248 per annum." It may be observed that the standard of demarcation establishment taken by Government appears from para. 44 of Major Thuillier's letter of 6th May 1857 to be the whole settlement department employed in the settled lower Provinces of Bengal, where however the demarcation of boundaries was the principal duty. The demarcation in that locality affected the property of the numerous Zemindars, and although their rights were still open to adjudication in the Civil Courts, the in-

vestgations for defining disputed boundaries assume a more important character than in ryotwary districts, where the assessment follows each field in whatever village it may fall, and the chief matter involved, is the convenience of the conflicting parties as to the village to which the lands should be entered in the accounts.

6. This being premised, it will be admitted that the expensive agency of Uncovenanted Deputy Collectors on salaries of 400 Rupees each, which constitutes more than half of the cost of the demarcation establishment, is not needed for the circumstances of this Presidency; and it may be remarked that the adjudication of disputes of field boundaries is such as may be left to comparatively inferior agents under general supervision, and be often satisfactorily undertaken by the villagers themselves, while the process of marking the fields, though tedious, requires but the lower class of servants under however energetic guidance and superintendence.

7. On the supposition that what I had already proposed (as above explained) may not be considered sufficient, and that it will be thought that I have placed too much reliance in the co-operation of the villagers and the aid of the local Revenue officers, of which advantage was taken in the Bombay survey, I have ventured to frame the following estimate for a separate Demarcation establishment for each party.

		Rs.
1	Inspector...	150
1	Deputy..	50
4	Head Goomastahs 2 at 30 and 2 at 20...	100
25	Goomastahs at 15.....	375
31	Peons at 5.......	155
	Monthly......	830
	Annually......	9,960

At the same time I confess that not only for economy, but for the sake of farmiliarizing the revenue and village officers with the work as much as possible, I should like to see their exertions freely drawn out and turned to account for the present purposes: and whatever special agency is employed, it must more or less be dependent upon their assistance, which may be expected to be readily given as it is required only for a limited period, and the work itself is likely to result in benefit to all parties, relieving the ryot of over-assessment and the Revenue officers of much of the trouble they now have in connection with it.

8. The estimate is necessarily imperfect in its details, which experience may require to be modified, and although much below the standard contemplated by Government will I think be considered sufficient. It is Rupees 9,960 per annum; and 4 such establishments will be required when the 4 parties are at work. Meanwhile 2 will suffice for the operations of the 2 survey parties now proposed. Strictly speaking this separate estimate for demarcation would require that about 10 classifiers in the settlement estimate should be dispensed with, but the Board will doubtless concur with me that it is not necessary to disturb the statements sent in, particularly as they question whether the rate of work and number of working days may not be estimated too high, so that having these persons on the list will help to bring up the work to the standard, and the Board also do not consider the assessment establishments too extensive. The demarcation parties will work under the same superintendence as the assessing servants. This was contemplated to be the case *eventually* with the more limited establishment before proposed, though for the reason explained in para. 13 of my letter of 7th Instant, I suggested that the Collector might at first undertake the duty. The additional charge now estimated for demarcation did not enter into the original estimate, and the Government in para 12 of Extract Minutes of Consultation of 11th Instant seem prepared to support such items with favorable recommendation to the Government of India.

Para. 18.

Para. 11.

9. With regard to the other matter for which the Board request me to estimate, viz. the expense of finding the Grand Tregonometrical survey, I beg to observe that no establishment seems to me necessary for this purpose. A list of stations collected from the former survey records for the Masulipatam District has been forwarded to the Collector, and it will impose very little trouble upon his establishment to have these identified where still traceable, and it is evident that his means of communicating simultaneously with the revenue servants and village officers throughout his District affords a better facility for procuring the requisite enquiries and a speedy result than the employing a few servants specially for the purpose.

10. There may however be some expense necessary for filling in blanks in the Triangulation of some Districts, but it is impossible to say what it will be till the Records of the Surveyor General's Depart-

ment are made complete for this Presidency, and the course to be pursued in this supplementary work is laid down. In para. 5 of my letter of 16th October last, I stated that the Superintendent of Revenue Survey considered it proper that any further triangulation required should be supplied by the Surveyor General of India, while I thought that the requisite points might perhaps be taken up from ascertained stations of former triangulation by one of Captain Priestley's Assistants.

11. Although the Board are in possession of information on the other points noticed in the Government minute and not referred to in their Proceedings under reply, I may point out that in the comparison made by Government of the survey establishments in the North West Provinces and Bengal with that now proposed, the item of the Kusrah, or field measurement, is omitted in the one case and included in the other. The annual cost of establishment for this item ought therefore to be added to the figures given by Government for Bengal and North West Provinces. This sum is not stated in the manual, *Page.* 534. but the average rate per square mile is Rupees 28-8-6 which is more than the cost of the Professional survey *Page.* 512. which averaged from 20¼ to 22-5-8 and 26¾ so that the total for the two operations is much more than double the sums quoted by Government and far exceeds the amount of 54,840 Rupees proposed in the revised estimate for each party.

12. With regard to the progress of operations in South Arcot and Trichinopoly it may be remarked that although the extent of work hitherto accomplished in a season by Captain Priestley falls much short of the standard proposed to be attained, still the results of the last season reported, viz. 450 square miles affords a favorable comparison with the earlier work in Bengal and North West Provin- *Page.* 509. ces where 338 square miles was the *maximum* attained in the first 9 years; so that while the present estimates are on a somewhat lower scale than the establishments in the North of India, the results obtained are more favorable and thus give promise of at least equal success and expedition in the extended operations.

I have the honor to be, &c.

H. NEWILL,

Director of Revenue Settlement.

Office of the
Director of Revenue Settlement,
Madras, 22d December, 1857.

The above letter is a reply made to the call of Government, for a separate demarcation Establishment, in their Extract Minutes Consultation of 11th December 1857, para. 11, No. 1288, Revenue Department.

2. The Board concur with Mr. Newill that it is not necessary to frame an Establishment on the scale proposed by Government, which as the Board have pointed out* was the one arranged for the lower Provinces of Bengal, and not for the N. W.† At the same time the demarcation process is easier in the unirrigated and open country and the large fields of the Deccan‡ than it will be in the Carnatic. The Board consider it sufficient to ask sanction for the establishment proposed by Mr. Newill§. Each party will cost 9,960 Rupees yearly, and 4 such parties|| will be required eventually. The Board have already¶ met Mr. Newill's wish** that his last assessment estimate including the extra supervisors, should stand as it is, but they misapprehended the exact numerical strength of his extra hands, the detail of which is now explained††.

* *Board's Proceedings* 18*th December* 1857, *No.* 4573, *para.* 14.

† *Para.* 5 *Mr. Newill's letter.*

‡ *Paras.* 3 *and* 4 *Mr. Newill's letter.*

§ *Para.* 7.

|| *Para.* 8.

¶ *Board's Pro.* 18*th Dec.* 1857, *para.* 11.

** *Para.* 8.

†† *Para.* 2.

3. In accordance with the directions of Government the Board called on Mr. Newill to submit an estimate for finding the stations of the Grand Trigonometrical Survey, but they concur with him that for the reasons stated in paras. 9 and 10 that no such estimate is required.

4. The remarks made by Mr. Newill in para. 11 have already been made by the Board in their Proceedings of 18th Dec. 1857, para. 14.

(A true Extract.)

(Signed) J. D. SIM,

Acting Secretary.

Extract Minutes of Consultation, dated 25*th January* 1858, *No.* 96.

1. With the above Extracts from their Proceedings, the Board of Revenue submit for the consideration of Government two letters from the Director of Revenue Settlement, forwarding revised Estimates of Establishment for the Survey and Assessment Departments, and a

Supplemental Estimate for a demarcation Establishment, which last was called for by Government in Extract Minutes Consultation of 11th December 1857, No. 1288, Revenue Department. The Board recommend the Estimates in their present form for adoption with very slight modificaiton, observing at the same time that, for works on so large a scale, and of so novel a character in this Presidency, as those now about to be undertaken, considerable latitude must be allowed to the presiding officers for reapportioning the salaries in such manner as experience may show to be desirable, provided that the total amount sanctioned be not exceeded, and that the consent of the Board of Revenue, or of the local Government, to such proposed changes be first obtained.

2. Before proceeding to the consideration of these detailed Estimates, reference may be briefly made to the sketch Estimate of the expense likely to be involved in this undertaking, which was submitted to the Government of India and to the Honorable Court in Extract Minutes Consultation of 14th August 1855, No. 951, R. D.

3. It was therein calculated that, supposing the survey operations to be carried out by four parties, each of the strength of that at present employed under Captain Priestley, the whole area of 60,000 square miles, which it is considered will include all the land requiring to be subjected to that operation, might be surveyed in 22 years, at an expense of Rupees 38,40,000, or about Rupees 64 per square mile.

4. The expense of the Settlement operations for this extent of land was calculated at Rs. 10 per 100 acres, which approximation was obtained from the report of the expense actually incurred on this account in the North West Provinces, and it was thus estimated that the settlement of the above named area of 60,000 square miles, or 38 million of acres, might be effected at a cost of Rupees 38,00,000, and thus the total of survey and assessment united was taken at Rupees 76,40,000.

Rupees 7 per 100 acres on the total area of the territory.

5. The Honorable Court, in their letter to this Government of 17th December 1856, admitted that this cost, large though it be, was "not incommensurate with the advantages sought to be obtained by it," and sanctioned the requisite expenditure, under which sanction the posts of Director of Revenue Settlement and of Superintendent of Sur-

vey have been already filled up, and it remains to furnish these officers with the means for carrying out the intentions of Government.

6. The plan submitted by Mr. Newill, in communication with Captain Priestley, and approved by the Board of Revenue, contemplates the completion of the entire operation within a period of about 14 years, instead of 22 as allowed for it by this Government, and with a more extended agency than they proposed, but without any increase of cost.

7. Time is an element of such importance in calculating the results of an operation such as that now in process of arrangement, that the value of the saving of one third of the whole period originally allotted for its completion, can scarcely be too highly estimated, and after careful scrutiny of the details of Mr. Newill's plan, the Government are prepared to admit that the results contemplated by it are attainable.

8. It is proposed that Captain Priestley, the Superintendent of Revenue Survey, shall organize four distinct parties of the strength detailed in the estimate, and as rapidly as the necessary class of agency can be procured, that each of these shall be under a Deputy Superintendent, and have allotted to it a separate geographical division of the operations, that each shall be proceeded in its field of labor by a distinct demarcation establishment, and followed by the Settlement Department, and that the results of the survey as they are obtained shall be multiplied and recorded by a Lithographic press to be worked under the direction of Captain Priestley.

9. The annual expense of the whole survey Department is estimated at Rupees 2,41,920 exclusive of Stationery, Instruments and Camp-equipage, and Captain Priestley calculates their annual work at the rate of 60 acres a day for each Aumeen for 260 working days in the year, with the proviso that the sanctioned minimum size of Survey field (being 2 acres for dry, and 1 for wet land) shall be maintained.

10. This gives a total of 4,400 square miles annually for the whole 4 parties, including about 11 per cent. of waste land, at a cost of Rupees 55 per square mile, and the whole extent of 60,000 square miles will thus be surveyed in 14 years, within the estimated expenditure of Rupees 38,40,000. So long as only 2 parties may have been organised, the cost will be Rupees 60 per square mile, and when 3 shall be at work, it will be reduced to Rupees 56½ per square mile, so that at the

highest rate, it will be less than the original Government estimate of Rupees 64 per square mile.

11. In judging of Captain Priestley's estimate of work to be performed by the results hitherto obtained by him, it is to be borne in mind that, in South Arcot and Trichinopoly, the minimum size of a Survey field, now proposed for his future operations was not maintained, and that the labour is said to have been increased in the ratio of 3 to 5, by surveying and plotting each field, even down to ·005 of an acre, while much loss of time resulted from the want of previous demarcation of the fields, and from the lapsed jaghires, and other localities selected for survey, being often in detached portions, instead of presenting a compact field for operations. Moreover, difficulty was also experienced in retaining servants permanently on what was considered only a temporary establishment, yet, notwithstanding these serious hinderances, Mr. Newill observes* that the results obtained last season by Captain Priestley, with establishments on a lower scale than those employed in the North of India, are considerably in excess of the *maximum* attained during the first 9 years in Bengal and the N. W. Provinces, and the Government share his opinion of the promise they give of at least equal success and expedition in the more extended operations now to be undertaken. Again, in comparing Captain Priestley's estimate of the cost of each of his Deputies' establishments with those sanctioned in the North West Provinces and in Bengal, it is pointed out that the item of "Khusreh," or field measurement, is included in the former, and omitted in the latter, and that the proportion of its cost, to that of the Professional Survey appears, from Captain Thuillier's Manual, to have been as Rupees $28\frac{1}{2}$ to Rupees $20\frac{1}{4}$ per square mile, so that the charge for the double operation must have been more than twice as much as that of the Survey (professional) alone.

Vide para. 10, *Mr. Newill's letter of 7th December* 1857.

* *Para.* 12, *letter of 22nd December* 1857.

Para. 11 *of same letter.*

For the Professional Survey only.

Bengal,	37,524	*Rs. per Party.*
N. W. Prov.	31,287	" "

For the Professional Survey and "Khusreh."
Proposed for Madras, 54,840, *Rs. per party.*

12. The intention of connecting the proposed Revenue Survey with the former Trigonometrical operations, renders necessary the employment of additional labour and superior skill, and the organization of the Public Works Department, when the salaries of its officers and their subordinates were made more adequate to the duties they had to perform, renders it imperatively necessary to fix those of the higher class of subordinates in the Survey Department at a suitable rate.

13. The Government resolve to recommend to the Supreme Government for sanction the estimate for the Survey Department as noted in the margin; but they approve of the Board's suggestion that the allowance for the Contingent Expenses of each Party shall be entered as a distinct item, and not as a personal allowance to the Deputy Superintendent as its head.

Abstract Survey Dept.	*Rs.*
Supt. of Rev. Survey per annum, ...	12,000
His Office	10,560
4 Survey "Parties" each under a Dy. Supt. at 54,840...	2,19,360
	2,41,920 *per annum.*

N. B.—This amount is exclusive of any Travelling allowances for the Superintendent and his office, and of saderward for his own and the Deputies' Establishments, and also of the cost of Instruments and Camp Equipage.

14. Considerations of the primary importance of obviating all risk of delay or hinderance to the Survey Parties, induced the Government in their order, dated 11th December 1857, to insist upon distinct and sufficient provision being made for the demarcation of boundaries, and Mr. Newill's plan includes a small Demarcation Establishment, at an estimated yearly cost of Rupees 9,960 for each of the 4 Parties required. He contemplates obtaining very considerable assistance in this work from the Revenue

Demarcation Establishment.

4 Parties at Rs. 9,960, per annum for each Party. } *Rs.* 39,840, *per annum.*

subordinates in the several Talooks and Villages, but considers that his present estimate, though it may hereafter require modification in some of its details, and is on a much smaller scale than that employed in the North West Provinces, (referred to by Government in their order above quoted,) whose duties were of a more important character than will arise under a Ryotwari or Khetwari settlement, will be sufficient for the purpose.

Lithographic Press Establishment Rs. 9,012 per annum for 15 years.

15. The Government will recommend this estimate for adoption, as also that for the Lithographic Press Establishment, amounting to Rupees 9,012 per annum, and which last it is calculated will be required for about 15 years, involving an estimated total expenditure on this account of Rs. 1,35,180.

16. Captain Priestley expects to be able to make considerable reductions in his Establisment of Draughtsmen when this Press is in full operation, and allowing for this saving of expense, it is calculated that the results of the Survey may be thus perpetuated in the convenient form of village, talook, and District maps, at a cost of less than Rs. 2 per square mile, while the maps will afford very valuable aid to the Assessing Department.

Abstract.

Settlement Establishment.

	Rupees.	
Director's salary, Tentage and Establishment..........	57,280	*per annum.*
4 *Deputies' salaries tentage and Establishments*........	1,89,564	„
Batta Suderwared and other contingent charges..........	10,000	„
Rupees...	2,56,844	

17. For carrying on the work of Settlement "*paripassu*" with the progress of the Survey, Mr. Newill submits estimates for his own establishment and for those of his 4 Deputies, involving an estimated total annual charge on every account, of Rs. 2,56,844.

18. To enable him to select and retain efficient Deputies out of the

Covenanted service, he has fixed on Rupees 1,200 per mensem for their pay which is slightly higher than that of a Sub-Collector, and with a similar object in view, has proposed a rate of pay for his Head Native Subordinate (whom the Board propose to designate Uncovenanted Assistant,) equal to that received by the Head Sheristadar in a Collector's office, and in these recommendations the Board concur.

Sub-Collector, Rupees... 1,166

19. In estimating the amount and value of the work that may reasonably be expected from each assessment "party," Mr. Newill has calculated that the work of classifying will progress at least equally rapidly with that of surveying, and that, allowing 275 working days in the year, and after deducting 10 men for demarcation duty out of every Superintendent's party of 60 classifiers, the work may yet be expected to advance at the rate of 8,25,000 acres, or 1,290 square miles annually for each "party," giving an annual total of 5,160 square miles for the whole establishment of 4 parties, and he shows that, supposing only 5,000 square miles are attained, the cost of assessing and for demarcation of boundaries, will be about 51 Rupees per square mile, while the original estimate of Government at Rupees 10 per 100 acres would give Rupees 64 per square mile.

Ac.	*Classes.*	*Working days.*
60 ×	50 ×	275
	=	8,25,000 *acres.*
	=	1,290 *square miles per annum for 1 assessing "party."*

Annual cost of establishment.	*Annual work performed.*
Rs. 2,56,844 ÷	5,000 *square miles.*
=	51·37 *cost per square mile.*

20. The Board of Revenue remark upon this, that Mr. Newill's estimate of the number of working days in the year is probably too high, but that it is not so sanguine as to lead them to regret it. The Government however observe that, as a separate demarcation Establishment is now proposed to be entertained, the full number of classifiers will be available for their own proper duty.

Acs.	*C.*	*Working days in the year.*
55 X 60 X		260
		= 8,58,000 *acres.*
		= 1,340 *square miles for each party.*
		or = 5,360 *square miles for the whole Assessment Establishment.*

Annual cost of

Assessment establishment.		*Demarcation establishment.*
Rs. 2,56,844	+	*Rs.* 39,840.
	=	*Rs.* 2,96,684.

S. M.	*Rs.*
5,360)	2,96,684.
	Rs. 55-5 *As.*

21. Allowing then only 55 acres a day for each man, and only 260 working days in the year, the whole Assessment Department might be expected to get through 5,360 square miles at a cost (including the charge for the demarcation Establishment,) of less than Rupees 56 per square mile. At this rate of progress the assessing department would in 14 years go over 75,000 square miles of country, being one-fourth more than the whole estimated area as beforementioned, but as they will be quite new to their work, as more than a year's work is already prepared for them in South Arcot, and as Captain Priestley expects to increase his annual amount of work to possibly 5,600 square miles per annum, if found on experience to be expedient, there seems no reason to fear that the assessing department will overrun the surveying department, though their annual estimated work is in these papers calculated at 1,100 and 1,290 square miles respectively for a party. Admitting the sufficiency of Mr. Newill's reasons for the rates of pay proposed by him, and not considering the strength of his Establishments too great, the Government resolve to submit his estimates to the Supreme Government for sanction.

	Annual.	
	Rs.	
Survey........................	2,41,920	
Assessment..............	2,56,844	*including Director's salary.*
Demarcation............	39,840	
Lithographic Press...	9,012	
Total...	5,47,616	
	14	*years.*
	76,66,624	

22. The total annual expenditure contemplated in these Estimates, amounts to Rs. 5,47,616, as noted in the margin, and as it may be expected to be continued during a period of about 14 years, the entire cost of the Survey and Assessment of the Madras Presidency is thus estimated to amount to Rupees 76,66,624, the original sketch estimate submitted by Government to the Honorable Court having been Rupees 76,40,000. Neither of these calculations included the cost of the requisite instruments for the survey department, nor is Captain Priestley able to furnish an estimate. His list of requirements will be forwarded to the Supreme Government with these estimates, with a request that as many of the instruments as can be supplied, may be sent down from Calcutta as soon as sanction is given to the establishments, so that no delay may occur in the parties commencing their work.

23. The Government approve the Board's recommendation in their Proceedings of 19th November 1857, that Captain Priestley shall be permitted to purchase the instruments that may be hearafter wanted, charging their cost in a contingent bill, and obtaining special sanction where the price of any one instrument may exceed Rupees 300, and have ordered the adoption of the plan. The requisite camp equipage and furniture can be procured on indent through the Military Depart-

ment, and an estimate should be submitted through the Board of Revenue for the necessary Lithographic Presses.

24. Sometime must elapse before the establishments proposed to be eventually employed can be organized. Properly qualified persons will not easily be found, and, in many instances, must be taught their duty by the Superintendent, and thus the whole annual expenditure contemplated in these estimates will not at once be incurred. But it is on every account most desirable that the work, from which such important results may be expected, should be pressed forward as rapidly as possible, and the Director of Assessment and Superintendent of Survey furnished with Establishments, without which, their salaries already sanctioned are little better than a waste of money.

25. It will be requested of the Government of India that authority may be given to the officer presiding over each of the Departments of Assessment and Survey, to disburse portions of the sanctioned pay to such persons as, though not perfectly qualified for their work, are yet the best that can be obtained, and generally to make such modifications in the pay of their establishments as on experience may be found desirable, with the understanding that, in no case, shall the amount allowed for an entire "Party" be exceeded, and that such changes shall be submitted for confirmation to the local Government. With so large and (in this Presidency) novel an undertaking as that under consideration, some discretionary power of this kind must be granted in the first instance to obviate the delay and inconvenience resulting from perpetual references, and early sanction for the work as estimated will be urgently pressed for, that the present season may not be lost.

26. One or two questions raised by the Board remain to be noticed, and first that regarding the measurement of the small fields included in the established standard "Survey Field." The Government entirely agree with the Board that this portion of the work must be controlled by the Superintendent of Survey, equally with the Professional Survey

of the standard "Fields," and that the one should not be allowed to fall much behind the other, but at the same time, they do not see that this requirement need invalidate Captain Priestley's estimate of the rate at which the work of the survey will progress.

27. The original proposal approved by the Board was that, while the Aumeens' measurements should be limited to the "Survey Fields," and that these should be plotted in the usual manner, the component fields within them should be distinguished by dotted lines according to the measurement shown in the village accounts, and that the particulars of each small included field "as per old village account" should be entered in the "Register." This plan appears to have been suggested by Captain Priestley himself, and to have met with the Board's approval; and coincides in great measure with that now proposed in para. 20 Board's Proceedings of 18th December 1857, and they observe that the sub-divisions of the fields will not run so small in the Northern Districts as they do in that part of the country to which Captain Priestley's operations have hitherto been confined. Mr. Newill states that he will be prepared, after conference with Captain Priestley, to propose a distinct arrangement for this purpose, and the Government will await the Board's further report on the subject.

No IX. Government Selections "Revenue Survey" para. 25.

28. Next, as to the erection and preservation of boundary marks, it is proposed that the cost shall, in the first instance, be advanced by Government, and recovered by postponing the reduction of the assessment, and it is hoped that the small field marks may be made by the Ryots themselves without becoming an item of cost. The same plan has been advocated by the Board in their Proceedings of the 18th Ultimo, and directed to be carried out in Ex. Mins. Cons. dated 19th Instant, No. 70.

(Signed) H. FORBES,
Acting Secretary to Government.

Letter from H. FORBES, Esq., Acting Secretary to the Government of Fort Saint George; to the Secretary to the Government of India, dated 25th January 1858, No. 97.

SIR,

I am directed by the Right Honorable the Governor in Council to forward, for submission to the Right Honorable Governor General in Council, the accompanying detailed Estimates in the prescribed form for the Establishments required to carry out the General Revenue Survey of this Presidency as authorised by the Honorable Court.

2. It will be in the recollection of the Supreme Government that the proceedings of this Government, dated 14th August 1855, to which they beg reference may be made, contained a rough calculation of the expense likely to be involved in the measure, which they estimated at a sum of about Rupees 76,40,000, under the supposition that about 22 years would be occupied in the work.

3. The Honorable Court, in their Despatch to this Government of 17th December 1856, sanctioned the expenditure necessary for carrying out this much needed operation, and the appointments of Director of Revenue Settlement and Superintendent of Revenue Survey having been filled up, the Establishments now asked for, are required to give the Government the benefit of the expenditure now being incurred on their account, and to prevent, as much as possible, any further delay in the commencement of the work, which the Honorable Court concurred with this Government in deprecating.

4. The plan of operations which it is proposed to carry out by means of the Establishments for which sanction is now sought, contemplates the completion of the whole work within a period of 14 years instead of 22, as originally estimated by this Government, and without any material increase of expense. The area to which it is believed that the Survey operations will have to be extended includes an extent of about 60,000 square miles; and experience enables Captain Priestley, the Superintendent of Revenue Survey, to anticipate with confidence

that the Establishments he proposes to organize will be able to perform their work at the rate of 4,400 square miles per annum, with a possibility of a considerable increase, while Mr. Newill, the Director of Revenue Settlement, contemplates the attainment of at least equal speed in his Department.

5. The value of the saving of time by the present plan, being just one-third of the period originally allowed for the completion of the operation by Government, can scarcely be over-estimated, whether in regard to the importance of the proposed measure to the Ryots, as tending to secure their tenure of their holdings, or to its effect in aiding the development of the resources of the country, increasing the Revenues, and lightening the individual incidence of the Land tax, by spreading it over a wider area, and this Government, after careful scrutiny of the details of the plan, see no reason to doubt that these objects will be attained as proposed.

6. The total annual expenditure that will be required, when the proposed Establishments have been raised to their full strength, (which however will not be feasible for some time to come), is Rupees 5,47,616, as noted in the margin, to be continued for a period of about 14 years, and thus aggregating a total expenditure of Rupees 76,66,624, for the whole work of the Survey and Settlement of this Presidency, for which, in the original sketch estimate, a sum of Rupees 76,40,000 was allowed.

Abstract.	*Annually.* Rs.
Survey Department	2,41,920
Assessment Department	2,56,844
Demarcation Establishment	39,840
Lithographic Press	9,012
Total per annum	5,47,616

7. The estimates provide for 4 distinct parties in the several departments of Demarcation, Survey, and Assessment, to be employed in

distinct Geographical divisions of the country, their operations to be directed by the Director of Revenue Settlement, and Superintendent of Revenue Survey; each of the 4 Parties of the Assessing and Surveying departments being immediately superintended by an European Deputy Superintendent, who, in the former case, will be a Covenanted officer, and will also have under his orders a party of the Demarcation Establishment, while the work of the Lithographic Press will be carried on under the direction of the Superintendent of Revenue Survey.

8. The rates of pay have been fixed not higher than is believed to be necessary to enable the heads of the Departments to secure and retain the best available agency in their respective branches of the work. Mr. Newill's Deputies may thus be selected from officers of the rank of Sub-Collector, and his head Native Subordinate will not be liable to be tempted away by the offer of the post of Head Sheristadar. It is very essential to progress and uniformity in this important work that frequent changes in the staff should be prevented as much as possible, and with this end in view, his Lordship in Council is of opinion that the proposed rates of pay are not higher than necessary.

9. In the Survey Department again, it has been necessary to fix the rates of pay with reference to those given in the Public Works Department, which were not considered more than an adequate remuneration for the services rendered when the Department was recently reorganized, and it is essential to success in the work now in contemplation, that Captain Priestley should not be exposed to the risk of losing his trained Agents when they are becoming useful, through the temptation of higher pay in another Department.

10. The primary importance of obviating all risk of delay to the survey parties induced this Government to insist upon the provision of a distinct demarcation establishment, the importance of whose labors is frequently insisted upon in Captain Thuillier's "Manual," which has been confidently referred to as a guide; and by the Lithographic Press, the results of the survey will be rapidly recorded, easily copied, and pre-

served in the convenient form of village, talook, and District Maps, which will afford material assistance to the Settlement Department, while Captain Priestley expects that its aid will eventually enable him to dispense with several Draughtsmen. To ensure greater accuracy in the survey, it is intended to connect it with the Great Trigonometrical Survey, and it is believed that but little increased expense will be caused by this measure.

11. The total sum proposed to be expended is, as statated above, Rupees 76,66,624 to be distributed over fourteen years, by an annual expenditure of Rupees 5,47,616, the original sketch estimate, which provided neither for a separate Demarcation Establishment, nor for the Lithographic Press, and which met with the sanction of the Honorable Court, having been Rupees 76,40,000.

12. The cost per square mile will be as follows according to a moderately estimated rate of progress.

——for the survey, including both the "Khusrah" and professional survey, about Rupees 55 per square mile, the original sketch estimate having allowed Rupees 64.

——for the assessment, and settlement of the surveyed area about Rupees 51, for which Rupees 64 were originally allowed.

——for the work of the demarcation establishment, including the settlement of disputed boundary questions, about Rupees 10, and for mapping the whole by means of Lithography in maps of different scales, according as they are village, talook, or District maps, about Rupees 2 per square mile; for these two last items no allowance was made in the original sketch.

13. These items would in the aggregate give an uniform rate of about Rupees 118 per square mile, while the total of the estimates now submitted will allow of an expenditure of about Rupees 128, which was the original estimate, so that an ample margin appears to be left to provide for the increased cost, which will be consequent on the necessarily slower rate of progress in the earlier stages of operations.

14. The Right Honorable the Governor in Council begs to recommend these Estimates to the Government of India for adoption, and to press for early sanction, that the present season may not be lost, and that a return may be obtained for the expense now being incurred for

the Director of Settlement and Superintendent of Survey, whose salaries, so long as they remain unprovided with establishments, are little better than waste of money.

15. The whole annual expenditure for which they provide will not be at once incurred, as considerable difficulty will be found in obtaining the necessary class of skilled agents, who must in many instances no doubt be educated for their work by the Superintendent; and it is probable that operations must be at first commenced with not more than 2 parties, instead of with 4 parties, as is eventually contemplated, and were it not that His Lordship in Council is deeply impressed with the exceeding importance of the proposed work, both as a means of removing existing grounds of discontent among the Ryots of this Presidency, and also of largely increasing the revenues of the State without augmenting individual burdens, he would have hesitated to press the measure on the notice of the Supreme Government at this particular juncture.

16. In conclusion, I am directed to request that as a matter of expediency, in consideration of the novelty of the work in this Presidency, and the anticipated difficulty in obtaining the requisite agency, discretionary authority may be given to the presiding officers in either department, to disburse portions only of the fixed rates of pay to such persons as, though not perfectly qualified for the work, may still be the best that can be obtained, and generally to make such re-arrangements of their staff as experience may dictate, provided that in no case shall the sum allotted for a party be exceeded, and that the consent of this Government shall be obtained to all such proposed changes, and I am lastly to request that immediately on sanction to the proposed Establishments being granted, the Government of India will be pleased to order the despatch to this Presidency of as many of the instruments entered in the subjoined list as may be readily procurable in Calcutta, so that the Survey parties may be enabled at once to commence their work.

Estimated Scale of Instruments for one "Party."

Names of Instruments.	No. of each.
Planimeter,...	3
100 Feet chains iron with arrows, ...	15
Chains Gunter's do., ...	100
Compasses beam wooden, ...	2
Do. large with pen and pencil legs brass pairs, ...	6
Do. small brass pairs, ...	60
Do. improved Prismatic with tripod stands,...	9
Circumferentors with trepod stands, ...	9
Cross staves,...	15
Optical squares, ...	6
Color boxes,...	2
Color branches of sizes, ...	24
Water branches, ...	2
Artificial horizon, ...	1
Barometer mountain, ...	1
Bars steel graduated 11 feet engraved and divided into feet, inches and tenths, for comparing Gunter's chains,...	4
Drawing pens, ...	20
Road and dotting pens each, 2.	4
Drawing pins for fastening maps to boards, ...	100
Flag staves, ...	50
Gunter's scales 2 feet brass, ...	2
Plotting and offsett scales 16 inch to 1 mile Wooden, ...	12
Mathematical Instruments including proportional compasses in cases,... ...	6
Opisometers, ...	6
Magnet bars in box, ...	1
Protractors brass rectangular, ...	10
Do. Ivory do., ...	12
Perambulators, Everest or Waugh's pattern, ...	1
Referring lamps with sight vane and plummet, ...	1
Rings spare for chains, ...	200
Rules Brass flat 3½ feet heavy, ...	1
Do. do. 2½ feet, ...	1
Do. Ebony flat 3 feet or 4 feet...	1
Do. Parallel 18 inches brass on rollers, ...	1
Do. do. 12 inches brass on rollers, ...	1
Do. do. 3 feet ebony with bars,...	1
Do. do. 1 foot do., ...	1
Do. do. 6 inches do., ...	6
Tapes measuring, ...	2
Telescopes reconoitering, ...	1
Theodolites 7 inches transit, ...	1
Do. 5 do. do.,...	1
Do. 6 do. Everest's pattern, ...	3
Do. 5 do. do., ...	5
Tracing glass, ...	1
Thermometers, ...	1
Sextant in box, ...	1
Heliotropes for hilly country and minor triangulation, ...	4
Plane tables for hilly country and minor triangulation, ...	6
COLORS EXTRA SIZE.	
Prussian blue lake, gamboge, each 6, ...	18
Light red burnt umber, each 1, ...	2
Burnt sienna, ...	12

(Signed) H. FORBES,
Acting Secretary to Government.

REVENUE DEPARTMENT.—*Statement of Temporary Establishment in*

Year.	Charges. Ordinary.	Charges. Extraordinary.
..	....	....

Extract from Home Dept. of Government of India. No.	Date.	Office to which the proposition refers.	Nature of charge. Present scale.	Monthly. Rs.	A.	P.	Nature of charge. Proposed scale.	Monthly. Rs.	A.	P.
		General Revenue Survey and Settlement of the Madras Presidency.					*Survey Department.*			
			1 Director of Revenue Settlement......	3,016	10	8	1 Supt. of Rev. Survey, salary, &c....	1,000	...	...
			1 Superintendent of Revenue Survey...	1,000	...	...	1 Office Asst. (as draughtsman)...	200	...	...
							1 Do. do. (as computer,)	150	...	...
							3 Draughtsmen at 40 Rs. ea.	120	...	...
							1 Manager, ...	100	...	...
							5 Examiners and Writers...	120	...	...
							1 Copying Clerk, ...	20	...	...
							1 Record-keeper, ...	38	8	...
							2 Asst. do. at 12½ Rs. each,	25	...	...
							1 Head Moochee, ...	17	8	...
							6 Assistant do.	35	...	...
							1 Duffadar,...	12	...	...
							6 Peons at 7 Rupees each...	42	...	...
								880	...	...
							For one survey party, 1 Deputy Surperintendent, ... 500; Travelling allowance,... 75; Contingent expenses,... 100	675	...	...
							1 European Assistant,.. 325; Travelling allowance,... 75	400	...	...
							1 European Assistant,.. 225; Travelling allowance,... 75	300	...	...
							1 Head Surveyor,... ... 100; 1 Do. do... ... 90; 1 Do. do... ... 80; 1 Do. do... ... 70	340	...	...
							1 Deputy Surveyor, ... 50; 3 Do. do. at 40,... 120; 4 Do. do. at 30,... 120; 1 Detail Surveyor, ... 25; 3 Do. do. at 20,... 60	375	...	...
							10 Surveyor Ameens at 14 Rupees each,... 140; 30 Do. do. at 10,... 300; 10 Goomastahs at 9,... 90; 10 Do. at 8, ... 80; 20 Do. at 7, ... 140	750	...	...
							N. B.—Head Surveyors to enter at 50 to receive 60 the second year.			

this Department recommended for the sanction of the Government of India.

Total. Annually. Rs.	A.	P.	Proposition. Permanent. Increase per annum. Rs.	Permanent. Decrease per annum. Rs.	Temporary. Increase per annum. Period.	Temporary. Increase per annum. Rs.	Temporary. Decrease per annum. Period.	Temporary. Decrease per annum. Rs.	Casual or Extraordinary.	Grounds of proposition.	Local Government's Recommendation.	Orders of the Govt. of India. Home Dept. Remarks.	Financial Dept. Remarks.	Financial Dept. Orders.
...														
12,000	...	...				12,000								
10,560	...	...			Fourteen years.	10,560				Vide letter to the Secretary to the Govt. of India, dated 25th January 1858, No. 97.	Favourable.			

REVENUE DEPARTMENT.—*Statement of Temporary Establishment in*

Year.	Charges. Ordinary.	Charges. Extraordinary.
. ....	......	.....

Extract from Home Department of Government of India. No.	Date.	Office to which the proposition refers.	Nature of charge. Present scale. Monthly Rs.	A.	P.	Nature of charge. Proposed scale.		Monthly Rs.	A.	P.
		General Revenue Survey and Settlement of the Madras Presidency.				1 Office Manager,....	75			
						1 Head Writer and computer,.	35			
						4 Do. at 25,.........	100			
						3 Do. at 20,.........	60			
						2 Do. at 15,...	30			
								300	...	...
						1 Head draughtsman,	50			
						1 Do	35			
						2 Do. at 30,...	60			
						3 Do. at 25,...	75			
						4 Do. at 20,...	80			
						5 Do. at 15,...	75			
								375	...	...
						1 Duffadar, ...	8			
						2 Do. at $7\frac{1}{2}$,.........	15			
						10 Peons at 6,.......	60			
						3 Do. at 5,... ...	15			
						4 Do. at $4\frac{1}{2}$,......	18			
						8 Do. at 4,........	32			
						15 Measuring Peons at 5,..	75			
						24 Do. do. at $4\frac{1}{2}$,......	108			
						16 Do. do. at 4,.	64			
								395	...	...
						1 Head station marker	7			
						12 Do. do. at 5,....	60			
						12 Do. do. at $4\frac{1}{2}$,.....	54			
								121	...	...
						1 Moochee, ...	$5\frac{1}{2}$			
						3 Do. at $4\frac{1}{2}$,..... .	$13\frac{1}{2}$			
						1 Blacksmith,.......	6			
						1 Chuckler,.........	5			
								29	...	...
						Measurement allowance, &c.,.......................		630	...	...
						Deduct for recess of 2 months..................		4,690	...	...
						Measurement allowances,...		1,260	...	...
						4 Head Survrs. travelling allowances		80	...	...
						30 Peons,............		100	...	...
						For one survey party...		......	...	...
						For four survey parties...		......	...	...
						Note.—Travelling allowances are included in the above rates of pay.				
						Total Superintendent's establishment and 4 survey parties..		......	...	...

this Department recommended for the sanction of the Government of India.

Total.			Proposition.						Casual or Extraordinary	Grounds of proposition.	Local Government's Recommendation.	Orders of the Govt. of India.		
			Permanent.		Temporary.							Home Dept.	Financial Dept.	
			Increase per annum.	Decrease per annum.	Increase per annum.		Decrease per annum.							
					Period.		Period.					Remarks.	Remarks.	Orders.
Annually. Rs.	A.	P.	Rs.	Rs.		Rs.		Rs.						
										Vide letter to the Secretary to the Govt. of India, dated 25th January 1858, No. 97.	Favorable.			
...	...	...												
56,280	...	...												
1,440	...	...												
54,840	...	...												
2,19,360	...	...	......	......	...	2,19,360								
....	...	...	....	......	...	2,41,920								

REVENUE DEPARTMENT.—*Statement of Temporary Establishment in*

Year.	Charges. Ordinary.	Charges. Extraordinary.
......	......	... ..

Extract from Home Department of Government of India. No.	Date.	Office to which the proposition refers.	Nature of charge. Present scale.	Monthly. Rs.	A.	P.	Nature of charge. Proposed scale.	Monthly. Rs.	A.	P.
		General Revenue Survey and Settlement of the Madras Presidency.					*Assessment Department.*			
							1 Director of Revenue Settlement,..	3,016	10	8
							Tentage,....	87	8	...
							Extra do. for 4 months,.... .	157	8	...
								3,261	10	8
							Office Establishment.		...	...
							1 Manager,....................	250	...	...
							1 Assistant do. and Indexer,	120	...	...
							1 Examiner,..................	80	...	...
							1 Head Clerk,................	70	...	...
							1 Do.	50	...	...
							1 Do.	40	...	...
							1 Computer,.................	35	...	...
							1 Writer,.....................	30	...	...
							1 Do.	24	...	...
							1 Do.	17	...	...
							1 Do.	15	...	...
							1 Do.	12	...	...
							1 Record-keeper,.............	80	...	...
							1 Translator in 3 languages,	80	...	...
							1 Unconvenanted Assistant,..	280	...	...
							1 Deputy Assistant,..........	75	...	...
							1 Assistant,..................	50	...	...
							1 Do.	35	...	...
							1 Do.	25	...	...
							1 Do.	20	...	...
							1 Do.	15	...	...
							1 Record-keeper,....	45	...	...
							1 Moochee,..................	10	8	...
							1 Do.	8	...	...
							1 Dufterbund,................	10	...	...
							1 Sweeper,...................	4	...	...
							1 Jamadar,..................	17	8	...
							12 Peons at 7,................	84	...	...
								1,582	..	...
							Extra Establishment while on Circuit.			
							1 Dresser or Apothecary,...50			
							1 Duffadar,..................12			
							6 Peons,... 42			
								104	...	...
							For 4 months.....	......	...	...

this Department recommended for the sanction of the Government of India.

Total.			Proposition. Permanent. Increase per annum.	Proposition. Permanent. Decrease per annum.	Proposition. Temporary. Increase per annum. Period.	Proposition. Temporary. Increase per annum.	Proposition. Temporary. Decrease per annum. Period.	Proposition. Temporary. Decrease per annum.	Casual or Extraordinary.	Grounds of proposition.	Local Government's Recommendation.	Orders of the Govt. of India. Home Dept. Remarks.	Orders of the Govt. of India. Financial Dept. Remarks.	Orders of the Govt. of India. Financial Dept. Orders.
Annually. Rs.	A.	P.	Rs.	Rs.		Rs.		Rs.						
36,200	...	...												
1,050	...	...												
630	...	...												
37,880	...	...												
										Vide letter to the Secy. to the Govt. of India, dated 25th Jany. 1858. No. 97	Favorable.			
18,984	...	...												
416	...	...												
57,280	...	...				57,280								

REVENUE DEPARTMENT.—*Statement of Temporary Establishment in*

Year.	Charges. Ordinary.	Charges. Extraordinary.
...	....	....

Extract from Home Dept. of Government of India. No.	Extract from Home Dept. of Government of India. Date.	Office to which the proposition refers.	Nature of charge. Present scale.	Monthly. Rs.	A.	P.	Nature of charge. Proposed scale.		Monthly. Rs.	A.	P.
		General Revenue Survey and Settlement of the Madras Presidency.					For one party.				
							1 Depy. or Supt. of Settlement,...		1,200	...	...
							Tentsge,...		87	8	...
							Extra do. 6 months,...		157	8	...
									1,445	...	...
							1 Native Assistant,...		140	...	...
							1 Head Goomastah,...		50	...	...
							1 Do. ...		35	...	...
							1 Do. ...		25	...	...
							2 Do. at 15,...		30	...	...
							1 Head Writer,...		35	...	...
							1 Do. ...		15	...	...
							1 Translator,...		40	...	...
							1 Moochee,...		9	...	...
							1 Duffadar,...		15	...	...
							6 Peons at 7,...		42	...	...
							6 Do. at 6,...		36	...	..
							1 Dresser,...		35	...	...
									507	...	...
							1 Supervisor,...	135			
							1 Goomastah,...	30			
							2 Do. at 15... ...	30			
							8 Classifiers at 24,...	192			
							8 Do. at 20,...	160			
							2 Hd. classifiers at 30..	60			
							2 Do. do. at 28,..	56			
							8 Peons at 6,...	48			
									711	...	...
							1 Supervisor,...	120			
							3 Goomastahs as above	60			
							20 Classifiers do....	468			
							8 Peons do...	48			
									696	...	...
							1 Supervisor,...	100			
							1 Goomastah,...	25			
							2 Do. at 14,...	28			
							20 Classifiers as above..	468			
							8 Peons do ...	48			
									669	...	...
									2,076	...	...
							For one party.		.....	...	...
							For four parties.		......	...	...
							Batta Saderwared and contingent charges...		....	...	...
							Total Director's Establishment four parties and contingent charges...				

this Department recommended for the sanction of the Government of India.

Total.

. . .

Total. Annually Rs.	A.	P.	Proposition. Permanent. Increase per annum. Rs.	Permanent. Decrease per annum. Rs.	Temporary. Increase per annum. Period.	Temporary. Increase per annum. Rs.	Temporary. Decrease per annum. Period.	Temporary. Decrease per annum. Rs.	Casual or Extraordinary.	Grounds of proposition.	Local Government's Recommendation.	Orders of the Govt. of India. Home Dept. Remarks.	Financial Dept. Remarks.	Financial Dept. Orders.
14,400	...	...												
1,050														
945														
16,395														
6,084	...	...								Vide letter to the Secretary to the Govt. of India, dated 25th January 1858, No. 97.	Favorable.			
24,912	..	..												
47,391	..	...												
1,89,564	...	...				1,89,564								
10,000	...	...				10,000								
....	...	...				2,56,844								

REVENUE DEPARTMENT.—*Statement of Temporary Establishment in*

Extract from Home Department of Government of India. No.	Date.	Office to which the proposition refers.	Nature of charge. Present scale.	Monthly. Rs.	A.	P.	Proposed scale.	Monthly. Rs.	A.	P.
		Year.								
		Charges. Ordinary.								
		Charges. Extraordinary.								
		General Revenue Survey and Settlement of the Madras Presidency.					*Demarcation Establishment.*			
							1 Inspector,............	150	...	...
							1 Deputy,.................	50	...	...
							2 Head Goomastahs at 30,	60	...	...
							2 Do. do. at 20,	40	...	...
							25 Goomastahs at 15,......	375	...	...
							31 Peons at 5,...............	155	...	...
							For one party...	830	...	...
							For 4 parties...	....	...	...
							Lithographic Establishment.			
							1 Head Lithographer and Draughtsman......... ...	90	...	...
							1 Do. do. 60			
							1 Do. do. 55			
							1 Do. do. 50			
							1 Do. do. 45	210	...	...
							For tracing work.			
							2 Draughtsmen at 35,..70			
							2 Do. at 30,..60			
							3 Asst. Do. at 25,..75			
							3 „ Do. at 20,.....60			
							3 „ Do. at 15,.....45			
							7 „ Do. at 10,.....70			
							4 „ Do. at 5,.....20	400	...	...
							Printers.			
							1 Head Printer,.........20			
							1 Printer,.................14			
							2 Pressmen at 6,.........12			
							1 Pressman,............. 5	51	...	...
								751	...	...
			Total per mensem..	4,016	10	8	Grand total per annum,...	......	...	...
			Total per annum...	48,200	...	...	Grand total for fourteen years...	....	...	...

Fort Saint George, 25th *Jan.* 1858.

this Department recommended for the sanction of the Government of India.

Total. ...... Annually. Rs.	A.	P.	Proposition. Permanent. Increase per annum. Rs.	Proposition. Permanent. Decrease per annum. Rs.	Proposition. Temporary. Increase per annum. Period.	Proposition. Temporary. Increase per annum. Rs.	Proposition. Temporary. Decrease per annum. Period.	Proposition. Temporary. Decrease per annum. Rs.	Casual or Extraordinary	Grounds of proposition.	Local Government's Recommendation.	Orders of the Govt. of India. Home Dept. Remarks.	Orders of the Govt. of India. Financial Dept. Remarks.	Orders of the Govt. of India. Financial Dept. Orders.
9,960	...	...												
39,840	...	...				39,840				Vide letter to the Secy. to the Govt. of India, dated 25th January 1858, No. 97.	Favorable.			
9,012	...	...				9,012								
....	...	...	......	......	...	*5,47,616								
....	...	...	......	......	...	76,66,624								

* This amount includes the present charge.

(Signed) H. FORBES,
Acting Secretary to Government.

Read the following Extract from the Proceedings of the Board of Revenue; dated 19th November 1857, No. 4044.

1. Read the following letter from the Director of Revenue Settlements, dated 16th October 1857.

From H. NEWILL, Esq., Director of the Revenue Settlement; to J. D. SIM, Esq., Acting Secretary to the Board of Revenue, dated 16th October 1857, No. 33.

SIR,

In accordance with paras. 4 & 5 of Extract Minutes Consultation, under date 11th Ultimo, I have the honor to submit for the consideration of the Board, the plan of operations proposed by the Superintendent of Survey for the enlarged sphere of action upon which he is about to enter.

2. The accompanying letter and its 2 accompaniments,* dated 21st Ultimo, but received from Captain Priestley only on the 2nd Instant, give full particulars of his proposed plan and of the establishments he considers necessary; and as no time should be lost in making preliminary arrangements for extending the Survey to the Rajahmundry District as soon as the Monsoon rains are over, I take the opportunity of forwarding this part of the scheme separately, I regret that even these few days delay should have occurred since the receipt of Captain Priestley's communication, and more particularly that from the same cause of sickness the submission of the plan of operations and Establishment for the Revenue Settlement should necessarily have been deferred; but I trust now that it will follow the present paper in the short interval of a few days.

* Modus operandi, &c., Printed Rules for the Survey Dept.

3. In the Revenue survey one point has been prominently brought to my notice by the Government in Extract Minutes Consultation, under date 14th August, and 7th September last, viz. the importance of connecting the present operations with the former trigonometrical survey.

The first experiments made by Captain Priestley in this respect have already been reviewed by the Board in their Proceedings of 15th August last, and in a subsequent letter to the Board dated 1st September, Captain Priestley gives another trigonometrical station which he has connected with the survey.

THE RESULTS ARE AS FOLLOWS.

Stations.	Error.
Audithoray to Purway..................................	26. 5 feet per mile.
Purway to Shellagoody................................	6. 1 do.
Shellagoody to Cullagoody........	10. 8 do.

The largest error of 26½ feet has arisen as explained by the Board from the use of defective chains, and may be considered exceptional, and all the examples must be considered satisfactory when compared with the discrepancies given at pages 504 and 505 of "the Manual of surveying" for the two surveys in the North West Provinces in 1832, and for those of Bengal in 1849, the former ranging from 1.63 feet to 33. 50 per mile and the latter from 4. 8 to 12 feet per mile.

4. The question of the practicability of connecting the Revenue survey with the Grand Trigonometrical operations, seems therefore satisfactorily solved, particularly as the errors may be expected to diminish with further experience. The only difficulty that is anticipated is the absence of trigonometrical points or the inability of recognizing them in any of the localities selected for future survey. It would not appear that Colonel Lambton's grand or secondary triangles were extended so as to cover the whole of the peninsula, but the blank, have certainly been filled up in some places, and probably in all instances, by minor triangulations, based upon the former, conducted by the officers of the Military Institution, in connection with the Topographical survey of the several Districts under the control of the Surveyor General. The Superintendent of Survey is of opinion that these minor operations will be found to be sufficiently accurate for the connection of the Revenue survey.

5. Upon examination of the records of the Surveyor General's Department in the Chief Engineer's Office these minor triangulations are found for the Masulipatam District, and the Collector will be requested to trace out the stations, as soon as I can obtain a transcript of their details from the Chief Engineer's Office. Unfortunately however there is no trace in these records of any triangulation of the Rajahmundry District where it is proposed to commence operations in the ensuing season, but I do not despair of the reference already made to the Government

of India producing the requisite information. In the event of sufficient stations not being found from the obliteration of the marks or other causes, (which difficulties are more likely to occur in the Delta from the absence of hill points, or other prominent and permanent objects) the deficiency must be supplied. I was of opinion that the Superintendent of Survey might entertain an extra Surveyor for the duty of determining the few requisite points from the sides of triangles already defined, but that Officer considers it proper that this should be done by the Surveyor General of India. In any case delay is to be deprecated, for, although the triangulation might follow the Revenue Survey and take up any of the well marked stations of it, it is evident that the requisite check and corrections could not be made so as to admit of the maps being printed till the completion of both operations.

Para. 6 of his paper now submitted.

6. The Superintendent of Survey proposes to represent his operations.

1st. In Village maps on the scale of 16 inches to the mile.

2nd. Talook maps on the scale of 2 inches to the mile, and

3rd. District maps on the scale of ½ an inch to the mile.

The scale which is proposed for the village maps is that which experience has shewn to be the most useful and suitable to all purposes as well as that more easily reduced to a smaller size. While this is adopted as the rule I would suggest that a discretion should be allowed for substituting a smaller scale in villages where all the fields are of a larger size than the average. For instance in the specimen village of Pandrapaud in the Guntoor District alluded to in my Report on the Survey class dated 3rd August last the smallest field is a little more than 1¾ acres and this on the map which is drawn on a scale of 10 inches to the mile, is represented by a surface of more than a quarter of a square inch. If 8 inches to the mile (or half standard scale) had been adopted the area of this field on the map would have been nearly ⅕ of a square inch, which is certainly sufficient for all practicable purposes. As the scale will be drawn on each of the village maps, no confusion will arise from their being of different sizes, while time and labor and expense will be economized by using the smallest scale consistent with a clear representation of all the fields.

7. The Talook maps have been proposed on the scale best suited for plotting the large circutes and representing also the details of culti-

vation and waste and other topographical features. They will be invaluable to the Engineer's Department as well as to the Revenue Officers particuarly in the localities where large hydraulic works are executed or contemplated. They will however be costly in their preparation, and I would suggest that an exception should be made in the extensive hilly tracts where the villages are often widely scattered and the cultivation comparatively trifling, and the Talooks also generally of a very large size. In such cases I think a scale of 1 inch to a mile would represent all the features of the country with sufficient minuteness, while if necessary any few patches better cultivated near a village might be shewn on a larger scale in the margin of the map.

The scale for the District maps seems to be that which has been found most useful in the North West Provinces and Bengal, and will admit of the boundaries of villages being given in almost all cases.

The arrangements proposed for lithographing these maps may be conveniently treated of under the head of establishment.

8. The proposed Establishments of the survey Branches are described in the acccompanying papers of Captain Priestley, and also in his report of 12th February 1857, and may be briefly stated as follows :

	Per Mensem.			Per Annum.		
	Rs.	A.	P.	Rs.	A.	P.
Superintendent of Survey Salary............	1,000	...	...			
Office Establisment for do.	880	...	...			
	1,880	...	...	22,260	...	...
Captain Priestley proposes at present a Survey party for a Deputy Superintendent as follows.						
Salary of Deputy Superintendent............	600	...	...			
Contingent charges a fixed allowance.........	100	...	...			
	700	...	...	8,400	...	...
Establishment....................................	2,661	8	...			
do. 12 months..............................	31,938	...	...			
Deduct 2 months' allowance and batta.......	1,000	...	...			
				30,938	...	...
				39,338	...	...

But he considers the party may after a while be enlarged to the scale marked D No. 1, and eventually to that marked E No. 2.

9. Captain Priestley proposes to place the survey party in the South under Lieutenant Hessey, as a Deputy Superintendent, and to organize another party for operations in Rajahmundry, of which he will be the head until the formation of further branches when he may be required to be relieved from this position, and to devote himself to the supervision of the extended operations. The 2nd party should be of the same strength as the first, though this may not be attainable at the outset. Captain Priestley as stated in his letter has three gentlemen in view, who will shortly be qualified for the higher grades of the survey branch, some individuals may also be available from the Public Works Department recently reduced, and the 3 survey classes in Rajahmundry, Masulapatam, and Guntoor, should be allowed to contribute to his want of subordinate servants, even at the risk of breaking up these small establishments. It is understood also that in Rajahmundry several persons qualified in surveying have been drafted into the Revenue Establishment, and the Collector should be solicited to allow of their services being made available for Captain Priestley. There seems therefore a fair prospect of the Rajahmundry branch party being organized within a reasonable time and fitted for operations in the cool season.

Captain Priestley's Office Establaishment is proposed for the superintendance of 3 or 4 parties, and as there will, at present, be only 2, and one of these will be attached to the Superintendent, the full amount of expenditure will not probably be necessary in the first instance.

10. A Lithographic Press is available in Madras, the price asked for it with complete material is Rupees 600, but the application for sanction for its purchase may form the subject of a separate communication, after further enquiry as to its proper value and sufficiency for the purpose required. To a lithographic Press should be added one of the Autographic presses of the large size, which will be found of great service for odd work or even smaller sections of maps, and will thus render the larger press more efficient by relieving it of smaller details and thus preventing frequent hindrance to its operations, a spare Autographic Press remains in the Collector's Office at Guntoor, where it was detained pending the receipt of English type for the Collectorate press, as no instructions were received from the Chief Engineer for making it over to the Public Works Department as directed by the Government. It

may however be spared, as what little English work is required may be done on the press at Masulipatam, I would recommend that 6 extra stones, all of the large size, and a polishing stone should be obtained from England for it, if not available from any stores at Madras. This is necessary for the occasional contingency of breakage and to prevent loss of time and expense from the want of stones.

11. The Establishment required for working a Lithographic Press and an Autographic Press together as far as I have been able to ascertain is as follows :

	Rs.	A.	P.
1 Head Printer..	20	0	0
1 Printer..	14	0	0
2 Pressmen at 6 Rupees.....................................	12	0	0
1 do. do..	5	0	0
Per mensem..................	51	0	0
Per annum..................	612	0	0

To this must be added contingent charges for transfer and printing ink, varnish, gum, sponges, cloths, &c.

I am unable to say what expense will be requisite for draughtsmen for drawing the Maps, but if the separate office Establishment for the Superintendent of Survey is sanctioned on the scale proposed, I have no doubt that at the commencement provision may be made from it for this part of the work under the circumstances described in para. 9.

12. It seems unnecessary for me to follow the Superintendent of Survey through the details of the plan of his operations based as they are on the valuable experience he has derived in the last 2 seasons, while I have as yet had no opportunity of judging of them from personal observations. These are given in his present communication and more at length in the papers appended to his report of 12th February 1857. The rules laid down for the guidance of all the subordinate grades of the Survey Department, it will be observed, are printed and appended to Captain Priestley's letter. A list of Instruments required for the survey party of a Deputy Surveyor is also given, and no time should be lost in obtaining the supply required for at least 2 such parties. Particulars of the instruments that Captain Priestley has already enumerated may be gathered from appendix F of his report alluded to. To complete his proposition, Captain Priestley has added as list of Camp equipage, furniture, books, &c., which he considers necessary for each survey party.

13. In the latter part of his paper Captain Priestley dwells upon the difficulties he has experienced in the demarcation of village and field boundaries, and proposes the future course to be adopted in preparing Villages for the survey.

The difficulty seems chiefly to have arisen from the circumstance of Captain Priestley's survey party being a department independant of the Revenue officers, and the Curnums being naturally disinclined to render a ready attention to the instructions of the survey subordinates whom they do not consider invested with any authority over them. Indeed the Curnums although the hereditary land registrars and land measurers of their Villages have been placed in an isolated position in the new survey operations, for beyond giving a constrained attendance occasionally, to point out the boundaries to the survey Ameens, he seeems to have had no further interest in the work. This is fully described in the report of the Additional Sub Collector, Mr Grant, dated 24th September, paras. 10 and 15, from which it appears that in no instance were the Curnums allowed or instructed to take copies of the field measurements as they proceeded, and are otherwise unable to give such information regarding these, and the boundary mark as might reasonably be expected from them. Had the rule been laid down for the Curnums to keep a copy of the measurements as they proceeded, which seems indispensable for future observance, I think that certainly many of the irregularities of the survey would have been avoided, such as that described by the Collector of South Arcot in his letter to me dated 24th September last, of the measuring Ameens running the boundary lines of the new survey field "so as to intersect old recognized fields;" for, as the responsibility would have been shared by the Curnum, he would hardly have ventured to disturb existing boundaries, or have allowed the Ameens to have unintentionally done so.

Para. 2.

14. Upon the interpositon of the authority of a respectable Revenue officer (a sheristadar) between the Curnums and the survey Department the evil seems to have been much mitigated, and as the Curnums will in future, readily attend to the instructions of the Revenue settling officer who will act in concert with the Survey Department, it may be expected that the difficulty will disappear, particularly as the the Curnums as well as the ryots will see in immediate prospect the advantages of the survey in regulating or reducing the assessment. I have drawn atttention to this point in order that the village Curnums to whom we must look

chiefly for the preserving the boundaries and registering the changes in the occupation of fields may be placed in their proper position and interested in the important work and invested with the responsibility due to their office as regards it.

15. The demarcation of the boundaries in future seems to require some specific rules for its prosecution. In the North West Provinces it was conducted by a separate establishment under the Revenue authorities, and it certainly seems proper that this preparatory work should not devolve on the survey officer, but be performed by the Revenue Department (to which it properly belongs) before the measurements are begun. I conceive it will be my duty in communication with the Collector of the District to make such arrangements for the conduct of this important matter as will secure the Villages being prepared as regards the external boundaries and the field boundary marks for the surveyors to prosecute their measurements without hindrance.

To secure this object it seems desirable that a Sheristadar, Peishcar, or other respectable Talook servant should (as was the case in the Chellumbrum and Manargoody Talooks) be deputed by the Collector with some peons to mark out, in connection with the Curnums, the village boundaries. A station marker should, as proposed by Captain Priestley, be deputed from the survey Department to regulate the Stations and the lines for the survey, with this combined agency there seems every probability of this part of the work progressing satisfactorily.

16. The interior field boundaries should at the same time be marked out before the survey, and this may require the more general interposition of the Collector's authority and the co-operation of his Tahsildars. The evil consequences described in the sequal which have arisen from want of due attention at the time to this matter shew that the remedy of retracing boundaries which have not been properly marked involves more expense and trouble than would be incurred by a short delay for the previous completion of this important work. The Government have pointed out in Extract Minutes Consultation dated 5th June 1857, that ridges of earth should be raised to mark the angles and other parts of the field; these are however necessarily only of a temporary nature, and where stones are procurable even at some distance the ryots may be induced to employ their bandies and cattle in their carriage in consideration of the advantages to result to them from the survey and the assessment. In other places, such as the Deltas, where stones are not

procurable within any reasonable distance, the thick tufts of "Ouroo" or other strong grass will form tolerably permanent marks, while again in the light sandy tracks, the "Mogale" bushes (Pandanus Odoratissimus) will be found to grow readily, and is a favorite boundary. Advantage should be taken to plant palmyra seeds at the corners or sides of fields wherever the soil admits of their growth, and other trees also might be reared for the same purpose.

17. As regards the boundary pillars employed by the Superintendent of survey for the village bondaries full particulars have already been laid before the Board. Captain Priestley proposes that these pillars should be built immediately after the survey, and I presume, was afraid of seeking too much in asking for them to be constructed before it. The station markers of the survey Department, as described by Captain Priestley, are men of much experience in marking boundaries, and it seems to me that they would not often err in fixing the site for the trijunction and other pillars before the survey officers come to the spot, and this would afford the immense advantage of the pillars being all ready for the Theodolite to be placed over them, for considering that even the discrepancy of half an inch in marking the fine boundary point on the pillar after the Theodolite is removed would throw out the angular bearings of the boundary, and that as stated by Captain Priestley "unless these permanent marks are set up exactly on the theodolite stations they are "worse than useless," the effort to secure their previous construction is certainly worthy of every attention, and even if a pillar or two should not be placed by the station markers in the most convenient place, and afterwards have to be replaced, the extra expense would be a mere trifle.

From Collector of South Arcot dated 24th February 1857 P. 18.
From Do. 2nd March 1357, &c.

18. It seems not only necessary that the exterior boundary of a village should be permanently marked, and its constituent fields defined in the most convenient way, but that there should be permanent marks in the interior of the village lands, so to check the obliteration and to facilitate the recovery of the field boundaries, which must often be necessarily only of a temporary character. The contingency may also arise of their being entirely swept away in any devastating hurricane, or inundation, or lost in the extensive abandonment of lands from famine and pestilence or other causes. The minor circuits in the interior of large Villages

Para. 20 of Appendix, No. 5, to report of 12th February 1857.

comprise subdivisions of 250 to 300 acres, and should certainly be permanently marked at convenient places, and if it is not thought necessary to carry these subdivisions to a more minute extent, say 100 acres, a few more permanent marks might still be introduced and marked in the maps.

19. The employment of the Revenue servants of the Collector's Department on the duty of marking the boundaries will sometimes involve the expense of extra servants to temporarily fill their places, and this should perhaps be charged to a minor head of the settlement charges. The erection of boundary pillars may require the aid of the Talook servants in providing materials and workmen, and this cost should be advanced in the first instance by the Government and recovered eventually from the ryots, together with any further expenditure which the Collector may have occasion to incur in having the field boundaries properly marked. The recovery is clearly authorized under Act XX. of 1855, and may very easily be effected by deducting in the first year the sum chargeable to each Village from the reduction of assessment that will probably take place in most cases under the new settlement. The charge will thus not be felt by the ryots, and it will relieve the Government of a large aggregate expenditure. Where the revenue settlement may not result in any reduction, the recovery should still be enforced, and will probably be readily assented to, as the fact of the Village receiving no reduction is an argument that the ryots are not overtaxed and well enough off to afford the charge.

20. The importance of perpetuating the boundaries cannot well be overrated, and no pains or expense ought to be spared in securing this object, and I would beg to draw attention to the imperfect state of the survey, where the boundaries have not been properly defined in a part of the South Arcot district as described by Captain Priestley, who says

Para. 70.

" I may bring forward the Cuddalore Talook in South " Arcot where the survey marks have been obliterated. In " it the field survey can now be of little more use than if lines had been " drawn at random across the map after laying down the Village boun- " dary, for it seldom happens that there is any well defined or recogniza- " ble limit to a field or property, so much is this the case that I under- " stand the Additional Sub Collector, Mr. Grant, has been obliged to lay " down the fields on the ground from measurement recorded in the sur-

" vey field book. I need not enlarge on the extra cost and labor of " such a process."

21. It only remains now to consider how the defects in the survey are to be remedied, so as to enable the settling Officer to proceed with the assessment. From the report of Mr. Grant, the additional Sub Collector, to the Collector of South Arcot, dated 24th Ultimo, it would seem that the field marks have been almost entirely obliterated in the Talooks of Cuddalore as described by Captain Priestley in his words already quoted, and that the same applies, although in a minor degree, to the Talooks of Manargoody and Chellumbrum. Mr. Grant took up the large Village of Coodecaudoo in Cuddalore, containing an area of about 3000 cawnies divided into 962 survey fields which he describes as being most arbitrarily defined in plots of 5-10 to 20 Cawnies* and so as " to " entail trouble where in one " large survey field there are " several holders and various classes of soil." Mr. Grant was employed altogether 43 days, or, deducting Sundays and holidays, 37 working days in laying down the boundaries of the field from the field book.

* Sic in Original perhaps acres are meant.

22. I have quoted the case of this single Village to show that very much remains to be done before the settling Officer can proceed with the assessment, in any satisfactory manner. Mr. Grant has been appointed to another sphere of duty, and it seems to me that it would be a great waste of time and of money to employ the settlement Department in supplying the deficiencies of the survey which is a necessary preliminary to the duty of assessing.

23. I beg to recommend therefore that parties should be detached from the survey Department to complete as expeditiously as possible the work of which Mr. Grant has given a specimen in the village quoted, and that the Collector to requested to give his earnest attention to the marking of the boundaries as they may be redefined. The process of laying down the boundaries for the field marks will be evidently more troublesome and less accurate, than making a new Survey, but the latter alternative would involve the loss of all the labor bestowed upon the Village maps, and be perhaps in the end more tedious and expensive.

From Captain F. J. B. Priestley, Superintendent Revenue Survey; to H. Newill, Esq., Director of Revenue Settlement, dated Madras, 21st September 1857, *No.* 100.

SIR,

In compliance with the instructions I have received, I have the honor to forward the plan of operation and establishment for the proposed Revenue Survey, which I should wish submitted for approval without delay.

As it is the wish of Government to begin the Survey of Rajahmundry and Masulipatam as soon as possible, I beg to point out that in order to commence any operations whatever even at the beginning of next year, it is absolutely necessary that permission be granted to entertain at once some European Assistants and some East Indian Head Surveyors.

There are three gentlemen who have already in camp been making themselves practically acquainted with the duties of an Assistant. One Mr. F. Puckle (whose brother is Head Assistant to the Collector of South Arcot,) another Mr. Brooke Legatt (son of Major Legatt who commands at Cuddalore), and the third Mr. W. Beaumont (brother to the Superintendent of the East India Iron Company). These three gentlemen if appointed immediately would be almost qualified by the beginning of the year.

Lieutenant Hessey has now been under me for three years and by his untiring exertions has contributed much towards the success of the experimental survey.

Since my promotion I have been necessarily a good deal absent from camp, and Lieutenant Pratt having been temporarily withdrawn, the conduct of the survey has been almost altogether in Lieutenant Hessey's hands.

I therefore beg to recommend that he should be appointed Deputy Superintendent Revenue Survey, taking up permanently the duties which I have hitherto performed.

I think that I may be able to obtain without much difficulty the services of some East Indians sufficiently qualified to undertake the duties of Head Surveyors, after receiving practical training for a few months.

By detaching some men at present employed in the survey, and entertaining any that are willing to enter of those who have received instruction in Guntoor the nucleus of another survey party will be formed.

MODUS OPERANDI.

The first operation in a Talook given for survey will be the identification of the Grand Trigonometrical survey stations and points. These having been recovered, will be marked by putting up bamboo poles as nearly as possible over the original stones left by the Grand Trigonometrical Surveyors.

From one of these stations the traverse work will initiate joining the nearest village boundary, it will run along it to the Talook boundary, (in many cases the nearest village boundary will also be that of the talook). Until it reaches the most convenient point from which to connect it with another Grand Trigonometrical Survey station or point, in the same manner as it was commenced.

These traverses will embrace circuits of from 50 to 100 square miles as circumstances permit.

By ascertaining the bearing of the station lines at intervals from Astronomical observation the angular work will be kept free from any error of consequence.

The traverses thus run will be proved and corrected by comparison with the value of the sides of the Grand Trigonometrical Survey triangles, and the error in linear measurement distributed proportionally over all the sides measured.

Thus corrected the work of the Revenue Survey will be found to adapt itself exactly to Colonel Lambton's triangulation.

If it should happen either that no triangulation has been made in a district to be surveyed, or that the stations of the Grand Trigonometrical Survey cannot be recognized, it will be necessary to apply to the Surveyor General of India to detach an officer of the Grand Trigonometrical Survey Department to the district to give the few points required for the correction of the Revenue Survey work.

I purpose to construct Talook Maps by having the above mentioned circuits plotted on a sheet of paper upon which the Grand Trigonometrical Survey stations have been previously laid down with great accuracy. Meridian and perpendicular lines being also carefully ruled at a distance of 10,000 feet apart.

These grand circuits having been plotted those of the villages composing them will be laid down from their traverses. The village Maps on a scale of 16 inches to a mile will then be reduced to that of

the Talook Maps (viz. 2 inches to 1 mile) and drawn each within the limits defined for it on the Map.

From these Talook Maps district Maps can be reduced to ¼th the scale on a large sheet, giving all the Grand Trigonometrical stations to which the Revenue Survey may have been connected, and on which also the convergence of the meridian may be shewn.

All minor details including the measurement, plotting and testing of villages, and village Maps together with the duties of each grade in the Survey have already been given in extenso in Appendix No. 2 of the report for the year 1856.

The work of a Superintendent's party will be exactly as laid down in the Appendix to the Report of 1856, with the exception that no fair copies of Maps will be required unless specially ordered, nor will puttah holdings be measured and mapped.

Copies of all village records will be prepared in his Office, and the originals also when no longer required for reference must be deposited in the Head Quarter office whence they can be obtained on application.

Below are given the Establishment.

SANCTIONED IN 1855

	Rs.	As.
9 Head Surveyors and Deputy Surveyors......	390	0
30 Survey Ameens............	562	8
30 Goomastahs......	300	0
9 Writers, Draughtsmen & Computers.........	195	0
126 Measurers.......	528	0
21 Duffadars and Peons......	117	0
Travelling allowance	225	0
Contingent charges	37	8
Total monthly...	2,355	0
For 12 months...	28,260	0
Deduct 2 months' batta...	450	0
Nett...	27,810	0

AND THAT NOW PROPOSED.

	Rs.	As.	P.
18 Head Surveyors, Deputy Surveyors & Detail Surveyors......	765	0	0
30 Survey Ameens...	315	0	0
30 Goomastahs......	240	0	0
20 Writers Computers and Draughtsmen...	450	0	0
77 Measurers, Peons and Moochies.........	368	8	0
19 Station Markers...	93	0	0
Travelling and measurement allowance......	400	0	0
Contingent charges........ ...	30	0	0
Total monthly...	2,661	8	0
For 12 months...	31,338	0	0
Deduct 2 months' allowance and batta...............	1,000	0	0
Nett...	30,338	0	0
Sanction...	27,810	0	0
Excess per Annum...	2,528	0	0
Per Mensem...	210	10	0 8

To meet this extra expenditure in part instead of the 30 Volunteers at 5 Rupees and 30 at $3\frac{1}{2}$ Rupees as at present, I would entertain only those 30 at $3\frac{1}{2}$ Rupees. These again can gradually be reduced in number as the whole Survey Establishment approaches completion.

EXTRA ESTABLISHMENT.
Sanctioned January 1856.

	Rs.	As.
30 Volunteers at 5	150	0
30 Do. at $3\frac{1}{2}$	105	0
Total...	255	0

NOW PROPOSED.

	Rs.	As.	P.
30 Volunteers at $3\frac{1}{2}$	105	0	0
Sanction...	255	0	0
Expenditure less per mensem..........	150	0	0
This deducted from the excess per mensem	210	10	8
Leaves net excess...	60	10	8

The high rate of pay given in the Department Public Works has rendered it necessary to increase the allowances of those persons having any pretensions to education and scientific acquirements, as will be seen in the above list.

I also propose that Assistants to the Superintendent shall enter on a salary of Rupees 275 per mensem as at present, and on their being reported qualified by the Superintendent that they should receive 325 Rupees, and that the senior Assistant's pay should be Rupees 425, but not till he has served 3 years, of each rate Rupees 75 to be for travelling allowance as at present.

I may here point out one advantage that Military Officers have as Assistants to the Superintendent, namely that having been for some years accustomed to command bodies of men as well as to habits of prompt obedience, they are more likely to maintain a proper degree of subordination than young men who have had no such training.

I anticipate that the Staff of draughtsmen and computers in the Superintendents' Offices may be hereafter considerably reduced as they will be relieved of the very troublesome duty of making duplicate copies of all the village Maps. Should my anticipations be fulfilled the sum Rupees 27,810 per annum originally sanctioned for the establishment without officers will probably not be exceeded.

It is better however to under-rate the capabilities of an establishment than to over-rate them. I have endeavoured to avoid this error.

The Establishment proposed is not however the one I consider best suited *eventually* to carry on the details of the Revenue Survey in the most economical expeditious and accurate manner.

It is at the same time one which a Superintendent can efficiently direct with new Assistants, but partially trained to their work.

As the Assistants become more useful the Superintendent will be able gradually to expand it to the dimensions shewn in No. 1 and subsequently to those in No. 2 (Appendix Report 1856).

The pay of the Superintendents as proposed is Rupees 625, but instead of as at present sending in contingent bills for expenses incurred in moving office tents and furniture, &c., in repairing tents, providing tin cases for Maps, &c., &c., I would propose to fix the monthly pay at Rupees 600, and give a fixed allowance of Rupees 100 to cover all the above expenses and the hire of an office during the recess; tents and office furniture being provided by Government in the first instance.

Estimated Scale of Instruments for Deputy Superintendent's party.

Names of Instruments.	No. of each.
Planimeter...........	3
100 Feet chains Iron with arrows...	15
Chains Gunter's, do.	100
Compasses Beam Wooden	2
Do. Large with pen and pencil legs brass pairs	6
Do. Small brass pairs......	60
Do. Improved Prismatic with Tripod Stands	9
Circumferenters with Tripod Stands......	9
Cross Staves......	15
Optical Squares......	6
Color Boxes.........	2
Color brushes of sizes	24
Water brushes......	2
Artificial Horizon	1
Barometer Mountain...	1
Bars steel graduated 11 feet engraved and divided into feet, inches and tenths for comparing Gunter's chains	4
Drawing Pens......	20
Road and dotting pens, each 2	4
Drawing Pins for fastening maps to Boards	100
Flag staves......	50
Gunter's scales 2 feet brass......	2
Plotting and offset scales 16 inch to 1 mile wooden	12
Mathematical instruments including proportional compasses in cases......	6
Opisometers...	6
Magnet Bars in box...	1
Protractors brass rectangular...	10
Do. Ivory do	12
Perambulators, Everest or Waugh's pattern...	1
Referring lamps with sight vale and plummet	1
Rings spare for chains......	200
Rules brass flat 3½ feet heavy	1
Do. do. 2½ feet	1
Do. Ebony flat 3 feet or 4 feet......	1
Do. Parallel 18 inches brass on rollers......	1
Do. do 12 inches brass on rollers......	1
Do. do 2 feet ebony with bars.....	1
Do. do 1 foot do	1
Do. do 6 inches do	6
Tapes measuring...	2
Telescopes reconnoitering...	1

Estimated Scale of Instruments.—(Continued.)

Names of Instruments.	No. of each.
Theodolites 7 inches transit......	1
Do. 5 do do	1
Do. 6 do Everest's pattern......	3
Do. 5 do do do	5
Tracing Glass......	1
Thermometers......	1
Sextant in box	1
Heliotropes for Hilly country and minor Triangulation	4
Plane tables for Hilly country and minor Triangulation	6
Colors Extra Size.	
Prussian blue, lake, gamboge, each..... .... 6	18
Light Red, burnt Umber, each..... ...... 1	2
Burnt Sienna....	12

Estimated Scale of Camp Equipage, Books, and Office Furniture for Superintendent's party.

Names of Instruments.	No. of each
Camp Equipage.	
Tents Hill or Staff Serjeant's lined with chintz...	3
Do. Office double poled large, do	1
Do. do. Single poled Captain's do	1
Tarpaulins waxed	6
Books.	
Logarithem (Chamber's, Young's or LaLande's)	1
Instructions on Topographical survey by Colonel Waugh......	1
Mathematical Tables Hutton's......	4
Manual of Surveying......	1
Nautical Almanac for the current year	1
Traverse Tables by Colonel Boileau......	9
Table of Trigonometrical Survey computations	1
Tables of land measure......	1
Pay and Audit Regulation Code of 1845......	1
Multiplication Tables by Major Smith......	6
Office Furniture.	
Teakwood Tables on trestles 6 X 3	6
Do. do do 4 X 3	6
Large and small boxes for Office Stationery and Records.....	8
Office Stamp (brass)......	1
Chupprases, Belts, &c.........	50
Office Benches	10
Native Accountants' Desks.........	20

Besides exercising a general supervision the Surveyor General will from time to time personally visit the Superintendents' parties, and where necessary satisfy himself on the ground of the correctness of the work performed, more especially with regard to the connection of the survey with the Grand Trigonometrical Survey points, and to the correctness of the bearing of the station lines, &c.

Copies of all the village Maps surveyed will be prepared and lithographed in his office.

Talook and District maps will also be drawn and lithographed there.

All maps and accounts as soon as completed by the Superintendents' parties must be deposited in the Head Quarter office.

Periodical returns to be hereafter specified, will be forwarded to the Surveyor General, who will be answerable for the disbursements made on account of the survey, and countersign all abstracts and bills before payment.

A certain per centage of the maps, field-books, land Registers, traverses and other computations will be examined, and tested in the Head Quarter Office before being handed over to the Officer in charge of the Assessment.

For the performance of the above duties the following establishment will be required.

A lithographic press (and persons to work it) capable of turning out as many copies as may be required of 2000 village maps, 8 talook maps and 1 district map per annum.

			Rs.	As.
Europeans or East Indians.	1	Office Assistant (as Draughtsman) ...	200	0
	1	Do. do. (as Computer.)	150	0
	3	Draughtsmen......	120	0
	1	Manager...........	100	0
	5	Examiners and Writers....	120	0
	1	Copying Clerk...........	20	0
	1	Record keeper (11 pagodas)..	38	8
	2	Assistant do	25	0
	1	Head Moochy (5 pagodas)......	17	8
	6	Assistant do	35	0
	1	Duffadar..................................	12	0
	6	Peons....................	42	0
		Total...	880	0

Having had no guide in drawing up the above it is very possible

that it may on trial be found to require modification, I have however endeavoured to frame it so as to perform efficiently the duties I consider required of it.

With regard to the office furniture and equipment I fancy no great difficulty will be found in obtaining what may be wanted from time to time.

The cost of lithography I assume as the same incurred in any other establishment, but having no data to go by I have left it blank.

Hitherto the survey has not had the advantage of any Revenue officer being detailed for the express purpose of preparing village boundaries and demarcating fields previous to survey.

The Tahsildars of the various Talooks have been entrusted with the first named duty, but from the pressure of their own business in addition to that thus imposed on them they have not been able to devote to it the attention that it deserved.

In many cases the work has been deligated to the Talook Sheristadar or Peshkar, and troublesome appeals to the Collector and sometimes to the Civil Judge of the district have been the result.

In no case has a Sketch Map been furnished of the marks set up by the settling officers.

It has often happened on the Peons attending at a village for the purpose of placing stations round the boundary that they have been unable to find any trace of the decision of the Tahsildar, no mark being in existence. The villagers on either side of the boundary could not agree as to the exact spot fixed on as the limit of their respective villages. It was necessary in such a case to delay the survey of the village till the Tahsildar could spare time from his other numerous avocations to enable him to visit the village and re-decide the dispute.

The obliteration of marks by discontented villagers has been a source of serious annoyance.

For though an Act is in existence for the punishment of offenders, yet it is almost a dead letter from there having been no one whose particular duty it was to enforce it.

It is obvious that as in most cases there is no natural boundary to a village, the destruction of the boundary marks intentionally or by neglect completely nullifies the labours of the Surveyor.

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It is ordered in the Act above referred to that villagers should be compelled to make permanent boundary marks of such materials as should be found necessary.

At first these marks which consisted of square brick and chunam pillars were erected by the Collector's department. But after such great delay that all trace of the proper boundary had been lost, and the pillars being erected almost at random were worse than useless for the purpose for which they were intended. Their object was to perpetuate the exact spot on which the Theodolite had been set up and the direction of the different chain lines encircling the village from which offsets had been taken to the smaller bends in the boundary.

They are important, because in the event of the marks at the minor bends being lost sight of any native Surveyor could if furnished with the field book and shewn the pillars, lay down the boundary again with accuracy.

They are also useful as starting points for angular work when surveying the adjacent villages.

They are particlularly needed in the boundary of Talooks.

Not a little extra labour has been necessitated and annoyance experienced in consequence of the delay in the erection of them.

The appointment of a Sheristadar in South Arcot last year to assist the survey has been of the greatest use, and by his aid marks that I could depend on were under the superintendence of my Peons erected in the Chellumbrum Talook, so that this year when the survey of the adjacent Talook, Manargoody, was undertaken I had trustworthy points to start from.

Though I have during this and last year been in the habit of detailing peons for the purpose of seeing that the pillars are built on their proper places, yet I submit that the duty is not properly one that belongs to the survey. It is as fairly chargeable to the civil branch as that of settling disputes or demarcating villages for survey. Besides I being furnished with no Police authority, and my men also being looked upon as lascars rather than Peons, they have not that weight that the subordinates of the Assessing Officer would have.

Preparation of Villages for Survey.

The Officer entrusted with the duty of settling boundary disputes should as soon as the boundary of a village is finally adjusted and

marked out make or cause to be made an eye Sketch of the village boundary clearly shewing any irregularities in it to which offsets will have to be taken when the village is surveyed.

The mode of doing this is well shewn in the manual of surveying for India, Part IV. Cap. I.

" As soon as the Pergunnah is completed, a correct list of villages " is made out, together with a general rough sketch, or Moojmillee Map, " exhibiting every village circuit in its proper relative position. These " documents are forwarded for the use and guidance of the Surveyor, and " without which it would be difficult for him to proceed. So much im- " portance is placed on the due performance of this duty, that Sur- " veyors are positively interdicted from surveying any boundary, unless " they are in actual possession of the demarcation papers."

Had I been so fortunate as to have been furnished with such sketches, I need hardly say that my labors would have been greatly facilitated.

The same rule as in Bengal should in future be applied to Surveyors in Madras, viz. that they be " positively interdicted from surveying any boundary unless they are in actual possession of the demarcation papers;" the advantage to be derived from this course would be incalculable.

The Sketch map required not being made to scale, and being merely intended to shew roughly the position villages occupy with reference to others, any intelligent Goomastah more especially if he possess any local knowledge might with ease be taught to make it.

With regard to the village eye sketch or " Thakbust" map, as it is termed in Bengal, I fancy most Curnums would be able to make a sufficiently intelligible one.

I may here remark that the points for Theodolite Stations will be fixed by the station markers of the survey establishment who from long practice have learned where to place them most advantageously. These points might be shewn on the Sketch map by little flags, before being returned to the Revenue Authorities, and would then serve as a guide to the erection of permanent boundary marks.

As I have before repeatedly pointed out permanent boundary marks, unless set up exactly on the Theodolite stations are worse than useless, not a day therefore should be lost in commencing them after the com-

pletion of the survey of a village boundary has been reported, in order that in the interval the temporary marks set up by the Surveyors may run no chance of obliteration.

The Peons employed in superintending the erection of these permanent marks will of course be under the orders of the Revenue Officer attached to the survey, if a European; but if a Native Official alone be available I think it will be advisable to place them under the Superintendent of the Revenue survey party.

Peons of the Revenue Department should always be detailed to assist the station markers when, after the demarcation of a village boundary, they are employed in superintending the clearing of the station lines from jungle. It is impossible for one man destitute of any authority over them to enforce the attendance of the villagers for this purpose, in fact the station marker's principal duty is to take care that the line is accurately straight from station to station, and to perform this correctly long practice is required.

From the delay caused by the want of the necessary authority this work has in some instances not been completed even at this advanced stage of the season.

The next subjects to be considered are the defination of the term *fields* and their demarcation.

They have up to this time been the cause of much confusion and uncertainty to the Surveyor from the difficulty of ascertaining what plots of ground are to be so called, and how far he is justified in joining the land of different proprietors, in order to form fields of convenient size.

By my last year's report and the letters required of me in explanation, it will have been perceived that both the Collector, under whose orders I was placed, and I myself failed to interpret correctly the instructions we respectively received on the subject; and for my part I must confess still to feel any thing but certain as to the precise definition of what a future survey field is to be.

With regard to demarcation, it appears to me, and I believe most persons who have given the matter their consideration concur in the opinion, that prior to a Survey Ameen commencing the detailed measurement of a village, the civil authorities should distinctly mark out each piece of ground or survey field which is intended to bear a separate number in the new survey record, and of which it is desirable to ascer-

tain the content. These survey fields must be pointed out to the survey Ameen by the village Curnum.

It is only with villages so prepared that the survey establishment can be made so useful as it ought to be; at present half the time of an Ameen is taken up in performing this preparatory duty of marking off fields, which he generally does in the afternoon in readiness for the following day.

On the durability of the marks set up will greatly depend the practical utility of the survey records. As a proof of this, I may bring forward the Cuddalore talook of the South Arcot district, where the survey marks have been obliterated. In it the field survey can now be of little more use than if lines had been drawn at random across the map after laying down the village boundary, for it seldom happens that there is any well defined or recognizable limit to a field or property. So much is this the case that I understand the additional Sub-Collector Mr. Grant has been obliged to lay down the fields on the ground from measurement recorded in the Survey field books! I need not enlarge on the extra cost and labor of such a process.

It would be far cheaper to erect field marks at Government expense than be obliged to identify the fields in the manner above mentioned.

The Survey Ameen drives in a picket at the corners of each field he measures, and I have constantly endeavoured (with partial success in Chellumbrum and Manargoody where a Sheristadar was specially appointed to assist the Survey) to have these marks perpetuated by raising over them mounds of earth covered with turf.

I cannot see any difficulty to be met with by the Revenue Authorities in enforcing the provisions of the Act for compelling ryots to erect marks on their property and on waste land in having them constructed at Government expense. Their perpetuation, as I have endeavoured to shew, is of vital importance and most especially concerns officers of the Revenue.

(Signed) F. J. B. PRIESTLEY, Captain,
Superintendent Revenue Survey.

D.

Proposed Survey Establishment, (No. 1.)

No.	Establishment	Rs.	A.	P.	Rs.	A.	P.
1	European Assistant 325 + 75 (travelling allowance).........	400	0	0			
1	Do. 225 + 75 do ...	300	0	0			
					700	0	0
1	Head Surveyor .... at 100 ...	100	0	0			
1	Do. do. .... at 90 ...	90	0	0			
1	Do. do. .... at 80 ...	80	0	0			
1	Do. do. . ... at 70 ...	70	0	0			
					340	0	0
	N. B.—Head Surveyors to enter at 50 to receive 60 the second year.						
1	Deputy Surveyor .... at 50 ...	50	0	0			
3	Do. do .... at 40 ...	120	0	0			
4	Do. do .... at 30 ...	120	0	0			
1	Detail Surveyor......... .... at 25 ...	25	0	0			
3	Do. do .... at 20 ...	60	0	0			
					375	0	0
10	Survey Ameens .... at 14 ...	140	0	0			
30	Do. do .... at 10 ...	300	0	0			
10	Goomastahs. .... at 9 ...	90	0	0			
10	Do. .... at 8 ...	80	0	0			
20	Do. .... at 7 ...	140	0	0			
					750	0	0
	OFFICE ESTABLISHMENT.						
1	Manager......... .... at 75 ...	75	0	0			
1	Head Writer and Computer...... at 35 ...	35	0	0			
4	Do....... .... at 25 ...	100	0	0			
3	Do...... .... at 20 ...	60	0	0			
2	Do....... .... at 15 ...	30	0	0			
					300	0	0
1	Head Draughtsman .... at 50 ...	50	0	0			
1	Do. .... at 35 ...	35	0	0			
2	Do. .... at 30 ...	60	0	0			
3	Do. .... at 25 ...	75	0	0			
4	Do. .... at 20 ...	80	0	0			
5	Do. .... at 15 ...	75	0	0			
					375	0	0
1	Duffadar... .... at 8 ...	8	0	0			
2	Do. ... . at 7½...	15	0	0			
7	Head Peons .... at 6 ...	42	0	0			
3	Tayeen do. .... at 6 ...	18	0	0			
3	Do. do .... at 5 ...	15	0	0			
4	Do. do .... at 4½...	18	0	0			
8	Do. do .... at 4 ...	32	0	0			

Proposed Survey Establishment.—(Continued.)

				Rs.	A.	P.	Rs.	A.	P.
15	Measuring Peons	...... at	5 ...	75	0	0			
24	Do. do	...... at	4½...	108	0	0			
16	Do. do	...... at	4 ..	64	0	0			
							395	0	0
1	Head Station Marker	...... at	7 ...	7	0	0			
12	Do. do	.... at	5 ...	60	0	0			
12	Do. do	.... at	4½...	54	0	0			
1	Moochy......	.... at	5½...	5	8	0			
3	Do.	.... at	4½...	13	8	0			
1	Blacksmith...	.... at	5 ...	5	0	0			
1	Chuckler......	.... at	5 ...	5	0	0			
							29	0	0
	Contingent charges		30 ...	30	0	0			
							30	0	0
	Total for 1 month ...			......	..	...	3,415	0	0
	for 12 months..			......	...	...	40,980	0	0
	Grant for 1⅓ party.....			.. ...	..	...	45,980	0	0
	To Ameens measuring allowances......			......	...	...	5,000	0	0

Deduct 10 per cent on the salaries of Head and Deputy Surveyors and Office men who receive.............. } Travelling allowances.

30 Rupees per month (during recess) 88–8–8.....
Add 10 Ameens to receive 3 Rs. per mensem and
30 Do. to do 2 „ do 90...... } Compensation for measurement allowances.

I propose that this Establishment be first tried, and if it be found that a Deputy Surveyor General and two European Assistants can control and keep place with even a larger subordinate Establishment than that it be raised to that marked No. 2.

• It will be perceived that no additional expense will be incurred by having 3 Deputy Surveyor Generals' parties of the strength shewn in No. 1, instead of 4 parties of the strength originally intended.

If a minimum of 2 acres in Poonjah and 1 in Nunjah be sanctioned, the 40 Ameens will at 60 acres a day for 260 working days complete about 975 square miles of fields towards the allowance for which there is a sum of 5,000 Rupees of the 6,300 required.

The difference being added, the yearly expenditure will be Rupees 47,280, and allowing 125 square miles of waste not measured as fields to have been included in the survey, the whole area will amount to 1,100 square miles, the expense per square mile being about 43 Rupees, allowing a most liberal margin it ought not to exceed Rupees 50.

N. B.—Expenses for erecting and superintending boundary pillars are not estimated for.

E.

Proposed Survey Establishment, (No. 2.)

No.	Designation	Rate	Rs.	A.	P.	Rs.	A.	P.
1	European Assistant	at 350 + 75 (travelling allowance)...	425	0	0			
1	Do. do.	at 250 + 75 do ...	325	0	0			
						750	0	0
1	Sub Assistant	at 150	150	0	0			
						150	0	0
2	Head Surveyors	at 100	200	0	0			
2	Do. do.	at 80	160	0	0			
1	Do. do.	at 70	70	0	0			
						430	0	0
	N. B.—To enter	at 50						
2	Deputy Surveyors	at 50	100	0	0			
3	Do. do.	at 40	120	0	0			
5	Do. do.	at 30	150	0	0			
2	Detail do.	at 25	50	0	0			
3	Do. do.	at 20	60	0	0			
						480	0	0
10	Ameens......	at 14	140	0	0			
10	Do.	at 12	120	0	0			
30	Do.	at 10	300	0	0			
10	Goomastahs	at 10	100	0	0			
10	Do.	at 9	90	0	0			
30	Do.	at 8	240	0	0			
						990	0	0
1	Manager.....	at 100	100	0	0			
1	Head Writer and Computer	at 50 ...	50	0	0			
2	Writers......	at 30	60	0	0			
2	Do.	at 25	50	0	0			
5	Do.	at 20	100	0	0			
2	Do.	at 15	30	0	0			
						390	0	0
1	Head Draughtsman	at 50	50	0	0			
1	Do.	at 35	35	0	0			
3	Do.	at 30	90	0	0			
5	Do.	at 25	125	0	0			
5	Do.	at 20	100	0	0			
5	Do.	at 15	75	0	0			
						475	0	0
1	Duffadar......	at 9	9	0	0			
2	Do.	at 8	16	0	0			
9	Head Peons.	at 6	54	0	0			
3	Tayeen do...	at 6	18	0	0			
4	Do. do...	at 5	20	0	0			
6	Do. do...	at 4½	27	0	0			
10	Do. do...	at 4	40	0	0			

Proposed Survey Establishment,—(Continued.)

					Rs.	A.	P.	Rs.	A.	P.
17	Measuring Peons	at	5	....	85	0	0			
30	Do. do	at	4½	....	135	0	0			
24	Do. do	at	4	....	96	0	0			
								500	0	0
1	Head station marker	at	7	....	7	0	0			
16	Do. do	at	5	....	80	0	0			
14	Do. do	at	4½	....	63	0	0			
								150	0	0
1	Moochy......	at	6	....	6	0	0			
2	Do.	at	5	....	10	0	0			
2	Do.	at	4½	....	9	0	0			
1	Blacksmith .	at	5	....	5	0	0			
1	Tent Lascar.	at	5	....	5	0	0			
1	Chuckler....	at	5	....	5	0	0			
								40	0	0
	Contingent Charges.........			...	50	0	0			
								50	0	0
	Total for 1 month......				......	...	...	4,405	0	0
								12		
	for 12 months...				......	...	...	52,860	0	0
	Grant 1⅔ party......				......	...	...	59,350	0	0

To Ameens measuring allowances... 6,490 0 0

Deduct 10 per cent. on salaries of 30 and upwards, during recess 118–8–0 per month......................} Travelling allowance.

Add 10 Ameens at 3...........	30	0	0	} Compensation for measurement allowance.
10 do. at 2–8........	25	0	0	
30 do. at 2	60	0	0	
	115	0	0.	

• If found practicable I propose this as the most complete establishment.

50 Ameens at 60 Acres a day (with the before mentioned minimum established) in 260 working days will measure about 1200 square miles. 1200 Rupees more will be required to pay the allowance for this extent to which 200 square miles of waste land surveyed but not measured may be added making a total area of 1400 square miles at a cost of 60,550 Rupees, or 43¼ Rupees per square mile making every allowance, say Rupees 50.

The Sub-Assistant should be taken from the Head Surveyors.

N. B.—Expenses for erecting and superintending boundary pillars are not estimated for.

2. Read the following letter from H. NEWILL, Esq., Director of Revenue Settlement; to J. D. SIM, Esq., Acting Secretary to the Revenue Board; dated Madras, 21st October 1857, No. 36.

SIR,

I have the honor to transmit copy of a letter* from the Collector of South Arcot enclosing me copy of a report† from Mr. Grant his additional Sub-Collector on the subject of the Revenue Survey in the above mentioned District. A former letter from Mr. Hall left me under the impression that Mr. Grant's report would be sent direct to the Board, while a copy would be sent to me, but as I have alluded to it in my letter of the 16th Instant, I think it as well to send the present copy for the information of the Board, in order to obviate any inconvenience from want of reference to it in the event of Mr. Hall's not having sent a copy direct.

* Dated 24th September 1857.

† Dated 24th September 1857.

Letter from ARTHUR HALL, Esq., Collector of South Arcot; to H. NEWILL, Esq., Director of Revenue Settlement Madras; dated Cuddalore, 24th September 1857, *No.* 506.

SIR,

Adverting to the last para. of my letter to you dated 21st Instant, I have now the honor to forward copy of a Report from Mr. Grant on the subject of the new survey fields in the village* where he has been engaged in retracing and marking them.

* Coodecuad.

2. It appears by Mr. Grant's letter that not much attention was paid to existing fields by the Ameens who measured the village in question, and that in forming new ones they ran the boundary lines of some of them so as to intersect old recognized fields.

3 This ought certainly not to have been done, and was a proceeding by no means in accordance with any instructions from me.

4. I was particularly anxious that all existing fields should be separately measured as they were in the resumed Jaghire of Paliemcottah, and even if several fields were clubbed together under the permission* granted, to include within one measurement several small fields not exceeding in extent 1 acre in irrigated and 2 acres in unirrigated land, care should have been taken that the lines of the new fields did not cut through any of the small ones, but that it followed the exterior boundary of the area of the whole fields thrown into one.

* Vide Ex. Min. Con. dated 3rd July 1854, Para. 8.

5. Mr. Grant now proposes going on with the classification of the fields in the Village where he has arranged the field marks, but unless he is furnished with explicit instructions, as to the number of classes into which it is intended to bring the soils, I do not see any use in his commencing the work.

6. I made a special application for instructions on this point and on one or two others as you will see by a reference to my letter to the Board of Revenue, No. 42, dated 26th February last, but I have not been favored with any positive answer.

Letter from PATRICK GRANT, Esq., Additional Sub-Collector of South Arcot; dated Cuddalore, 24th September 1857.

SIR,

The following report will throw some light on the present state of the new survey fields in this Talook of Cuddalore, and in a minor degree on those of the Talooks of Munnargoody and Chellumbrum, also on the amount of work which has to be undergone before the new survey field marks can be recoverd, an essential step previous to the commencement of the reassessment.

2. Your letter dated 23rd July gave cover to Extract from the Proceedings of the Board of Revenue, dated 9th July, No. 2359, accom-

panied by Minutes of Consultation, dated 5th June 1857, and directed my attention to the points discussed in these papers, with a request that I would do all I could in furtherance of the orders of Government.

3. The points discussed are two, and they are embodied in paras. 5 and 6 of the Minutes of Consultation, on the latter I will not now enter.

In para 5 it is stated, "The Government are clearly of "opinion that it is most desirable that the results of Captain Priest-"ley's labours should be made practicably available, by the boun-"daries of the survey fields being fixed, before the lapse of time "shall increase the difficulty of the operation, and that Mr. Grant "could not be more usefully employed than in applying the sur-"vey record to each village in turn in ascertaining the position "of each survey field, and in placing bounds to mark it. For field "boundaries the Government would recommend the plan which "has been found successful in the Dekhan survey of oblong mounds "of earth covered with turf, placed so as to mark the angle of each field;" and in the latter part of your letter you say that you think it will be necessary for me to have an Establishment to carry on the work, and you request me to send in a list of the persons you think will be requir-ed.

5. To enable me to form a correct estimate of the work required and of the Establishment necessary to carry it on, I at once resolved to take up a large Village to perpetuate the survey field marks in it when found, and to recover them where missing.

6. The only persons engaged in the work besides the village autho-rities, were an active young man, a volunteer, and one of my Deloyets. The village selected is named Coodecaudoo, situated south west of Cudda-lore, it contains 3000 caunies which are now divided into 962 new survey fields. These fields seem to have been settled most arbitrarily, and con-tain 510 and 20 caunies according to the discretion of the measuring Ameenah, a practice which will entail trouble where in one large survey field there are several holders and various classes of soil.

7. The measurement of the village was commenced on 1st August and concluded 12th September, a period of 43 days, from this are to be deducted 6 days taken up in feasts, &c. This leaves 37 days, the period actually passsed in the remeasurement, then dividing 962, the number of new survey fields by 37 we get 26 as the average number of new survey fields measured per diem.

8. Out of about 2500 field marks not more than 50 of the old ones were found.

9. The plan pursued to perpetuate the marks is that suggested in para. 5 of Minutes of Consultation quoted in para. 4 of this report. The fields being large, and the lands mostly unirrigated presented few practical difficulties in laying out the marks in the oblong shapes, but in irrigated lands and especially in those under the influence of the rivers where the Paddy banks are permanent, the kind of field mark to be adopted must, I conceive, depend a good deal on local circumstances and the discretion of the superintending officer. The great object is to have a well defined lasting mark, and so long as this object is attained, the shape and substance of the materials used does not much signify; a note might be entered at the foot of the village accounts indicating the nature of the field marks.

10. At the commencement of the mensuration, the work proceeded very slowly as the common country Kole of 24 feet was the only instrument to be obtained. Captain Priestley was applied to, but he was unable to supply a chain, and it was only after the work had been going on for some time that the loan of a chain was obtained from Mr. Garthwaite of the Educational Department. It is also to be recollected that the process of retracing old measurements is a much slower one than that of laying them down anew. The Curnum who accompanied the survey Ameenah and supplied him with detailed information concerning the Ryots and their various holdings ought, one would think, to have been able to assist much in retracing the field marks, and to have possessed a copy of the measurements made by the Ameenah, but this latter the Ameenah seems studiously to have kept from him, and of the marks, beyond what his memory supplied, he possessed no knowledge.

11. I have not yet been able to carry out the wishes of Government as expressed in para. 6 of Minutes of Consultation. The re-measurement of the village was only completed on the 12th Instant, and the intervening period has been occupied in preparing the accounts of the same. I am now about to commence the classification, but as some time must elapse before its completion, I send in this report to enable you to let the Director of Revenue Settlement know what the state of the surveyed villages is. At first I intended to have carried on the re-measurement of the fields and the classification of the soil at the same time, but I found that it would have impeded the work, my establishment being so very small.

12. On the completion of the classification, &c., of the soil of Coodecaudoo village, I will, if I do not hear from you to the contrary, submit a Tabular Statement of the Establishment I consider necessary to carry out the wishes of Government regarding the re-measurement of the survey fields and the classification, &c., of the soil.

13. On the completion of these processes, I trust that the new assessment will speedily follow, for this alone will induce the people to take any interest in what is going on. At present they have their lands secured to them by their Puttahs and the old survey accounts, and care but little about the survey, in fact it has hitherto been a source of annoyance to them; to see a set of men moving about and measuring their lands, they (the Ryots) being obliged to perpetuate the marks set up by these measurers, a failure in the same entailing a penalty, is not likely to bring the Survey into favour so long as there are no practical results, but let the ryots see that the work about to be undertaken is followed by a reduction of assessment, and we shall have them all assisting in it, instead of as at present offering a passive resistance.

14. In classifying the lands of Coodecaudoo village I propose to follow the plan pursued in the Pallemcottah villages, and range them under four classes, namely, Black, Red, White and Sandy soils; but I think it will be well to solicit explicit instructions on the subject from the Director of Revenue Settlement, otherwise the work will have to be gone over again, if he does not approve of what is about to be done, and deems a further subdivision of soils necessary.

15. In the latter part of para. 10, I stated that the Curnum possessed no copy of the field measurements made by the Ameenah. This remark I believe holds good in regard to almost all if not all the Curnums of the 3 Talooks. The Curnums of the Cuddalore Talook have all in person informed me that such is the case with reference to themselves. This is a great error, and one that should be remedied in all future operations, because without a copy of these measurements, the Curnum cannot render any assistance in retracing boundaries or finding out field marks, in fact he is perfectly useless, as circumstances exist. All the Curnums will

have to take copies of the survey field Registers either before or whilst the operation of re-assessment of the fields is going on.

(True Copy.)

(Signed) H. NEWILL,

Director of Revenue Settlement.

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3. Read the following letter from H. NEWILL, Esq., Director of Revenue Settlement; to J. D. SIM, Esq., Acting Secretary to the Board of Revenue, dated 28th October 1857, No. 40.

SIR,

With a Copy of Extract Minute of Consultation under date 14th August last, the correspondence noted in the margin regarding the new Survey and Assessment proposed for this Presidency was submitted for my consideration, and in paras. 3 and 4 Extract Minutes Consultation, dated 11th Ultimo, it is further directed that a plan of operation and statement of the Establishment proposed to be entertained should be prepared and submitted through the Board of Revenue; while in para. 6 of the last quoted Minute it is stated that the constituent parts of the Establishments I am called upon to organize can be determined only after the general rules to guide the calculations of the assessment shall have been finally decided on.

Proceedings Board Revenue 15th July 1857, No. 2400.
Do. Do. 1st August 1857, No. 2585.
Minutes Consultation 14th August 1855, No. 951.
To Honorable Court of Directors 11th October 1855, No. 44.
From Government of India 16th October 1856, No. 1396.
From Honorable Court of Directors 17th December 1856, No. 17.
Extract Minutes Consultation, 22nd April 1857, No. 372.
From Government of India 5th June 1857, No. 810, with Enclosures and Maps.

2. The Board have in their Proceedings of 15th July 1857, reviewed the various opinions which have been elicited on several primary points in the general scheme for the new survey and assessment as it passed from the Madras Government through the hands of the Government of

India and of the Honorable Court of Directors, and although it might be presumption in me to enter upon the general consideration of the subject after the result of its long discussion and the matured judgments of the ablest minds have been recorded, I may perhaps be expected to touch upon some of the questions which are still not set at rest, with reference to their practical bearing and connection with the plan of operations I am called upon to devise.

3. As the officer appointed to carry on the new Settlement, I seem to have less to do with abstract theories, which however excellent in themselves, may not always be suitable or even possible in practice under the many and varied circumstances of the country than with the consideration of the best manner of carrying into operation acknowledged principles and approved measures, so as to secure the confidence of the mass of the agricultural community and to call forth their industry and exertions which are essential elements of the success of the proposed scheme. In the North West Provinces "the settlement is stated to be not an arbitrary act on the part of the Government," but "a bargain between the State and Malyoozar, and it seems highly expedient that the measures for the settlement in this Presidency should be so contrived as to secure the concurrence and approval of the ryots by their special adaptation to their circumstances as well as by holding out the inducement of a general reduction in their burden of assessment. In accordance with the above views as to the course that should be pursued, I shall venture to notice as briefly as possible the several points on which remarks seem to be called for by me as respect the operations that may be based upon them.

Vide para. 59 Sec. 4, directions to Settlement Officers.

Grain valuation of lands.

4. Reserving for consideration at the close of this paper the mode of classification of the soils, I may first notice the proposed grain valuation of fields. In para. 15 of the Minutes of Consultation under date 14th August 1855, the Government express their opinion that, while noticing the physical characteristics of the soil, the classifier should note as nearly as possible its productive powers in quantities of some one ordinary grain crop, paddy for irrigated land, and cumboo, cholum or other dry grain for unirrigated land, and that this grain estimate should form the basis of

the ultimate settlements. The Board of Revenue in para. 10 of their Proceedings of 15th July 1857, have pointed out that there are practical difficulties in this process, and that in England the plan of putting a grain valuation on each field under the tithe Commutation Act was found so difficult that it was subsequently abandoned.

5. In irrigated lands, it may be practicable to estimate the quantity of paddy that may be grown on each acre, and to take this calculation as a basis, as it is presumed that paddy may be raised on every description of irrigated land, though it may not be in every instance the most advantageous crop. But in dry lands the case is widely different, the crops are so diversified that it will not always be easy to select one as a standard, and the difficulty would be indefinitely increased by attempting the adoption of one standard grain for the whole Presidency, for the preponderating dry staple grain in one District is almost or entirely unknown in other localities as might be readily instanced if necessary. Again, the preponderating dry grain produce of a District may be Bajra (called also Cumboo, Sudza and Ghaute) or other grain crop which admits of an after crop of grain or other pulses being grown the same year, and this at once puts an obstacle to obtaining a bonâ fide return of the whole produce of the year in quantities of a prescribed grain. Moreover, if all lands are to be classed as dry, without reference to irrigation, and a water tax imposed, as is proposed, the above facilities, with regard to the valuation in paddy on irrigated lands will vanish and give place to the great difficulty of ascertaining what dry produce paddy lands will yield without water.

6. To represent on the terms of a staple grain the productive powers of plantain and cocoanut gardens, of large tracts of Indigo or Tobacco cultivation or of the sandy tracts of the cheyroot crop is obviously a task of an anomalous nature, and the results arrived at may be expected to be fallacious in themselves and as tending to mislead in the subsequent calculations to be based upon them.

7. As no one dry crop can be universally grown throughout a District, or even a smaller extent of country, it is evident that to estimate, in terms of a standard grain, the produce of any other kind, a circuitous process must be adopted of first estimating the crop that is grown whether of grain or any thing else, and then converting the value of this into the measure of the prescribed grain, and this cannot be done accurately without first entering into the question of the prices

of the several kinds of produce, which is anticipating, the next process of the proposed mode of settlement and of which the grain valuation is intended to be independent.

Para. 21 *Ex. Min. Con.* 14*th August* 1855.

8. The object for which the grain estimates were originally intended seems to have been the revision of the assessment every 7 or 10 years, with reference to the fluctuation of prices, and as this has been objected to by the Court of Directors* who prefer that the settlement should extend to a period of 30 years, after which the assessment in toto should come under revision, the determination of the assessment directly from the valuation of each field in terms of grain may not now be thought necessary were it even practicable.

* *Para.* 22, *Despatch* 17*th December* 1856.

9. It may be remarked also that in the settlement in the North West Provinces and in the Bombay Presidency the process of a grain valuation was not attempted, and in some places of the Southern Districts it is found that, while a grain assessment was fixed on the wet lands, the dry lands in the same District were subjected to a direct money assessment.

10. While however these difficulties appear in the way of carrying out the measure in what I suppose to be its integrity, the assessment may be contrived so as to be variable according to the prices of grain, &c., by the following process. The relative class in which a field should rank, being determined with reference to its productive powers, its situation and other advantages or disadvantages, and the assessment being fixed on what may be supposed to represent the standard proportion of gross produce or net profits, the sum thus arrived at may be taken as a standard of assessment, care being taken at the same time to ascertain the relative value of agricultural produce. Variations may then be made without difficulty in the money payment with reference to any fluctuations in the prices of grain, &c., and also if such occasion should arise, with reference to any great fluctuations in the value of the current coin in which the assessment is paid. It does not thus seem of moment whether any change of the original settlement is made for fluctuations in the prices of grain and in the value of money on the basis

of a grain assessment, or of the money value corresponding to it at the time of the settlement.

11. The experience obtained in England from the operations of the tithe commutation seems decidedly to bear in favor of the charge being originally fixed in terms of money rather than of grain, and no difficulty has been found in varying the charge thus fixed in money according to the fluctuations of the prices of grain, and I do not hesitate to express my humble but decided opinion in favor of the settlement being made in terms of money rather than of grain. From the numerous practical difficulties which press from so many points in the way of determining by the direct process a grain assessment, generally for each field. I feel convinced that notwithstanding every effort that may be made to accomplish this, the conclusion arrived at will result in reality from necessarily following in a great measure the inverse process of first fixing a money value and then converting it into grain, and it seems proper for me thus at the onset to clearly express my conviction in order to prevent any misapprehension hereafter.

12. I may be allowed to quote the views of Major Wingate, Superintendent of Survey and Assessment, given in para. 65 of his report on the Rutnagherry Collectorate in the Bombay Presidency on the question of grain and money rents, as his long practical experience and the attentive consideration he has given to the subject entitle his opinion to much weight. He says "a grain rent of fixed amount is open " to objection, on the score of pressing most heavily on the farmer in a " year of scarcity, when his means are most crippled, for he has then " to furnish the same amount of produce as in an abundant season, and " the whole benefit of its enhanced price goes to the land-lord. A " grain-rent or Assessment is thus highest in years of scarcity and " lowest in years of abundance, which is a most unfavorable arrange- " ment for the producer. A fixed money rent, on the other hand, " more nearly resembles a share of the net produce, for the grain for " which it would exchange will be greatest in a year of abundance " when prices are low, and least in one of scarcity when prices are high, " which is a greatly more favorable arrangement for the cultivator than " a fixed grain-rent." He adds however that "the grain-rent has " the great advantage of protecting the cultivator against an increase " of Assessment from a permanent fall in the prices of produce to " which he is always exposed when the Assessment is fixed in money."

But it must I think be conceded that such permanent fall in the prices may be provided for by a reduction of the money Assessment to meet the circumstances.

Variation of money Assessment with reference to prices of grain.

13. It may be thought superfluous for me to dilate upon the subject of making the Assessment vary with reference to the value of the standard crop, as described in para. 21 of Extract of Minutes of Consultation dated 14th August 1855, as this part of the scheme has been disapproved of by the Court of Directors, but its intimate connection with the preceding question of the grain valuation induces me to state what seems to me on the practical bearing of the subject.

14. It is to be greatly feared, as pointed out by the Board, that any attempt to enhance the Assessment when the prices rise, would create "very great dissatisfaction among the ryots" and in short vitiate the permanent character of the settlement. Most Revenue officers know how difficult it is to get the ryots to agree to any additional impost, even in limited localities, and although the difficulty might be lessened under the circumstance of the Assessment being placed on a more moderate footing, any general measure of the kind might prove to be impolitic and land to great embarrassment.

15. The native mind would readily appreciate a fixed money Assessment, and if on extraordinary occasions of a depression of the prices of agricultural produce, or of the value of money, it should be found to be expedient to make a reduction from the demand, calculated with reference to the state of the market, this would not detract from the idea of permanency of the Assessment, since the ryots are accustomed to remissions, and the reversion to the full standard would be easy.

16. The case of annual statements now made in some places at Market prices of paddy does not seem to be one in point, for the ryots are constantly kept alive to the fluctuating nature of the Assessment, and never consider it permanent, but under the proposed scheme the original element of grain Assessment would probably be entirely lost sight of by the mass of the people, after the money payment of a fixed sum for 7 or 10 years, and the variation then of the money value of the original standard would be regarded simply as raising or lowering the

Assessment. If the variation of money Assessment were to be made annually the matter would be easy, as respects the ryots, for he would at once understand that his Assessment is a fluctuating one as regards money, and he would not attach to it the idea of permanency; but this again would be doing away with our main object of the settlement and is attended with the serious difficulty also of fixing the Assessment upon the prices of the current year.

17. If no enhancement of the money Assessment is considered practicable, the reductions would necessarily be confined to extraordinary occasions only, and I may venture to suggest that the crisis of such changes in the value of agricultural produce, as seriously affect the well being of the ryots appear to be rapidly arrived at, perhaps in two or three years, while the climax of high prices passes perhaps even more quickly, so that a septennial or decennial revision as originally proposed would not perhaps be that most suited for the circumstances, and again the average of a past series of years may not prove to be a fair index of the standard for a similar series in prospect, for a district might be impoverished before the year of adjustment arrived, and an enchancement might also result when a reduction would be more suitable.

18. In illustration I may give the average prices of the staple dry grain, viz. cholum of a district (Guntoor) for which the figures are at hand in series of 10 years and also of 7 years.

Fuslies	Price of Cholum per Candy.			Averages of 10 years.			Averages of 7 years.		
	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
1211.........	50	5	...						
1212.........	34	7	...						
1213.........	38	6	...						
1214.........	34	4	...						
1215.........	32	6	...						
1216.........	49	15	...						
1217.........	34	9	...	....	......	.....	39	2	.....
1218.........	28	12	...						
1219.........	30	8	...						
1220.........	36	1	...	36	15	.....			
1221.........	33	15	..						
1222.........	32	14	...						
1223.........	45	4	...						
1224.........	41	8	...	....	......	.....	35	9	.....
1225.........	37	8	...						
1226.........	35	4	...						
1227.........	48	4	...						
1228.........	59	12	...						
1229.........	38	8	...						
1230.........	48	...	...	42	1	.....			
1231.........	37	8	...	....	......	.....	43	9	.....
1232.........	49	12	...						
1233.........	46	12	...						
1234.........	45	8	...						
1235.........	37	12	...						
1236.........	23	...	...						
1237.........	24	4	...						
1238.........	31	...	...	....	......	.....	36	14	.....
1239.........	32	4	...						
1240.........	30	8	...	35	13	.....			
1241.........	27	12	...						
1242.........	48	...	...						
1243.........	48	12	...						
1244.........	37	12	...						
1245.........	24	4	...	....	......	.....	35	10	.....
1246.........	25	...	...						
1247.........	24	8	...						
1248.........	41	12	...						
1249.........	29	12	...						
1250.........	25	4	...	33	4	.....			
1251.........	19	4	...						
1252.........	14	12	...	....	......	.....	25	12	.....
1253.........	11	8	...						
1254.........	17	4	...						
1255.........	33	12	...						
1256.........	31	4	...						
1257.........	30	12	...						
1258.........	26	...	...						
1259.........	24	4	...	....	......	.....	24	15	.....
1260.........	31	4	...	24	......	.....			
1261.........	30	12	...						
1262.........	27	4	...						
1263.........	38	4	...						
1264.........	33	2	...						
1265.........	36	3	...	33	2	.....	32	13	.....
				5 years.			6 years.		

In 3 out of the first 4 series of 10 years each the averages preserve a tolerably perfect uniformity, while for the remaining series the difference is about 15 per cent. Taking the next series of 10 years to fusly 1260 the average price is 24 Rupees while the average of the preceding 10 years is Rupees 33-4 and if this were adopted for the succeeding series the cultivators would be forced to pay an average rate of 37½ per cent. above the actual value, a state of things nearly ruinous in practice. Again, taking the 5 years to Fusly 1265, as the series of 10 is not yet completed, the average price is 33-2, or a little less than the earliest standard, while the average of the preceding 10 years, which would rule the demand for these 5, would be only 24, or just as much below the actual value as the other instance was above it.

19. Upon looking more closely into the matter of the depression from the Fusly 1251 to 1260 which was an extraordinary one, it will be found that it was chiefly confined to 4 years, and that the average of the remaining 6 years is nearly 30 Rupees. It would naturally follow that to meet this case, a plan that would afford relief for the 4 years in question would suffice for the exigency, as the comparatively slight depression in the other years would be met by the elasticity of the resources of the District, while on the other hand the regulating the assessment by averages of past series of years would certainly not have afforded the least relief in the case quoted, but have created an unseasonable disturbance of the assessment in the whole of 2 series of 20 years altogether out of proportion to the actual requirements of the case. If 7 years are taken for the series instead of 10, the result is pretty much the same as the fluctuations in the averages are not essentially different as shown in the foregoing Statement. It may be observed that the great and unparalled depression in the 4 years above alluded to falls within 2 series in this case instead of one, and accordingly modifies the average for both periods, and although it so happens that the average for the first of these 2 periods is a tolerable index of the 2nd, yet taking the periods preceding and following these two series, we have nearly the same incongruous application of averages of past series to those following, as was the case in the series of 10 years.

20. The application of the principle of the English tithe commutation by which the assessment would vary annually according to the average of a past series of years is also attended with most of the objections above pointed out, and it may be observed that its successful oper-

ation where it applies only to a small fraction of the rent in a country where provident habits and the accumulation of capital are prevalent, by no means argues that the same results would be obtained in this country, where a great proportion of the cultivators live from hand to mouth, and where it would affect the whole assessment which is supposed to be ⅔ of the rent.

Gross produce and net profit as the basis of Settlement.

21. The subject of the net profits being taken as the basis of the Settlement instead of the gross produce has been perhaps sufficiently noticied by the Board in para. 8 of their Proceedings, but I may point out one circumstance which seems to meet in a measure at least the objection that the plan of assessing according to the gross produce is disproportionately favorable towards the more fertile soils. It is that the straw and other miscellaneous products, which are of much value to the ryots and are not included in the estimate of the gross produce, do not vary in quantity and value in proportion to the fertility of the soils ; and indeed practically this item has always been considered a partial if not a full compensation for the expenses of cultivation. The only data which I have available for illustration are those prepared by the Honorable W. Elliot when Commissioner in Guntoor. From Statement No 2 of this report of 18th December 1845 it will be seen that while the value of the grain produce on the best and worst lands is taken in the ratio of 17 to 1, the value of straw, &c., on the same lands is taken in the ratio of about 5 to 1, and again that in the first class the straw bears the proportionate value of ⅐ of the grain produce while in the last class the very poorest soil it is nearly one half of it. Whether therefore the gross produce is retained as the basis of the assessment or the net profits kept in view for this object the above circumstance affords material aid in proportioning the settlement on the several descriptions of land, and this, connected with the circumstance that the facilities or disadvantages of cultivation from a consideration in the valuation of the land, renders the distinction between the two data of less importance than at first sight might be supposed.

		Rs. A. P.
1st *Class.*	*produce per acre*	8-7- 3
	straw do do.	0 15-4
10*th do.*	*produce do do.*	0 8-0
	straw do do.	0 3-2

Water rate for irrigated land.

22. The suggestion noticed in para. 13 of the Dispatch of the Court of Directors whether a water rate on all irrigated lands irrespective of the plan of assessing lands as irrigated or unirrigated should not be introduced, has been treated by the Board in para. 6 of their Proceedings in its practical bearing, and I do not see how the conclusions therein arrived at can be denied. The only way to secure the establishment of an universal water rate and to meet the main difficulty in the difference of the relative capabilities of various classes of lands when subjected to or left without irrigation would be to fix the water rate so low as to leave it moderate in any case. This would be an unnecessary sacrifice of revenue and a departure from the general principle of the assessment, which is assumed to be a certain proportion of the gross produce or of the net profits. In illustration 2 cases (by no means extreme ones) may be given.

Assessment with reference to capability without irrigation.	Do. Do. With irrigation.	Difference or amount to be put down for water value.	Amount if 4 Rs. water rate were added to the dry assessment.
1 Rupee per acre	8 Rupees.	7.	5.
2 do. do.	6 Rupees.	4.	6.

More than 4 Rupees could not thus be taken for the water rate without injustice towards one of the classes of soil, and assuming this as a standard the order of the relative capabilities of the two fields under irrigation would be reversed, and ⅜ of the assessment fairly leviable would have to be foregone in one case by the application of the uniform water rate moderated so as to suit both.

Wet Assistant	8 *Rupees.*
Dry Assistant water rate	5 *Rupees.*
difference	3 *Rupees.*
or ⅜	

23. The question of water tax seems to have been hitherto treated of in the form only of one universal rate modified with reference to the growth of a second crop or of a crop such as sugarcane requiring a larger supply of water. The propriety of charging a fixed uniform rate

on all lands growing a single ordinary crop, say of paddy, without reference to the sufficiency or conveniency of supply seems very questionable. For first of all there are in many districts the ordinary rain fed tanks with very precarious supplies, and the cultivation under them not unfrequently suffers at some stage from the water not being sufficiently or opportunely supplied, and although a crop of paddy is matured in many seasons, it seldom attains to that standard of general out-turn which is secured from better and more constant irrigation. Next there are large tanks or lakes such as that at Cumbum for which after the season has commenced, the supply can be pretty well calculated upon, and the cultivation undertaken with confidence. Again, there are reservoirs supplied not only by the rains but by the high freshes of rivers by means of channels unconnected with anicuts, and these have an advantage over the ordinary tanks, though affected by fluctuations in the annual character of the river freshes, and lastly there is the constant and almost unfailing supply furnished by anicuts to the Deltas of the great rivers.

24. To enable the ryot to pay a water tax and retain a fair share of profit from the cultivation, it would under the above circumstances be necessary to have gradations of the water rate independent also of the question of single and double crops. In para. 6 of the Minutes Consultation 21st August 1856, the Government allow the principle that the tax should be proportinate to the quantity of water supplied, and the consideration of certainty and continuity of supply are evidently important elements of a general calculation of the quantity of water provided at the Government expense, so that gradations of the water rate thus regulated would not be inconsistent with these views of Government. But the Government in the same para. advocated the principle that the water should be charged for in proportion to its cost to Government, and not in proportion to its value to the ryot, but on that occasion it was not stated whether it was intended to uphold one general water rate with reference to the total expenditure on irrigation works, or whether the charge for water under different works and sources of supply should vary with reference to the outlay on the same. To one universal water rate the circumstances above described are opposed, and if gradations are made it seems more desirable that they should have reference to the nature of the supply of water than that they should be proportioned to the outlay on the several works which it would not always be easy to trace with sufficient accuracy as a basis of calculation.

I am not in possession of data to show the relative cost of water provided from large river anicuts, channels, tanks, &c., calculated on the irrigated area, and I conclude it would take some time and labor for the Department of Public Works to prepare satisfactory information on this point.

25. Not less than 3 gradations of water rate would probably be sufficient to meet the case, and even if they are restricted to this number they will become 6 under the circumstance of a 2nd crop. These details may be useful to the settling officer in his calculations for the assessment, but I question much whether with this complication of the water rate in addition to the dry rates which would have to be calculated on wet lands often with great uncertainty from the absence of data as to their capability for dry produce, any advantage will otherwise be gained over the existing system of assessing wet lands with reference to their capabilities under irrigation, which is decidedly a more certain process, and one that may be made very simple by limiting the number of rates.

26. If it should be thought desirable to distinguish what part of the revenue is due to the water, a general result may be deduced from a comparison of the average rate of the wet assessment with that of the dry lands, or of such portions of them as may be supposed to correspond in intrinsic value to those irrigated.

27. As the question of the double crop assessment may not be out of place here, I would observe that in the same para. of the Government order above quoted it is argued that the quantity of water consumed is not materially less for the 2nd crop than for the 1st, and it may even be greater, and also that in Rajahmundry it is contemplated levying a double rate for the 2nd crop on the ground stated in the Minutes Consultation relating to the subject, of the summer water being more valuable than that used for the 1st crop. I would venture to suggest that some misapprehension appears to exist on the first of these points. In Rajahmundry, Masulipatam and Guntoor at least the custom is for the ryots to grow their best crops of rice, which takes about 6 months to mature, in the beginning of the season, and afterwards (as far as the practice of 2nd cropping has extended) their inferior crop which is not in the ground more than about half the time of the first crop. The quantity of water required for the preparation of the land for the 2nd crop is small compared with what is put on it

on its being first broken up for the season, and the short period of the growth of the 2nd crop makes an essential difference in the quantity required for it. Again, I believe gingily oil seed is grown in some cases as a 2nd crop and requires comparatively little water. It may be that the process of agriculture is reversed in the southern Districts, and that the best crop which is longest on the ground may be reserved for the latter part of the season, where it is practicable to grow two crops, and that the government had reference to this in the remarks quoted. If it is admitted that considerably less water is required for the shorter crop, the conclusion seems to follow that as summer water cannot be said to cost the Government more than that supplied in the freshes, a full water tax should be calculated, for the longer and better crop requiring the larger proportion of water, and a further portion of the rate for the inferior crop, and if the principle is followed of compounding for the two crops, as approved of in the Government order quoted, there will not be much difficulty in adjusting the assessment to the circumstances.

28. It may be here suggested that the plan of a consolidated assesssment for all double crop lands has eminent advantages as respects the revenue administration, for it does away with the vexatious interference of the revenue authorities, which is necessary for ascertaining what fields are watered for single and for double crops, and also the complication in the accounts by the items of fussul jasty and fussul cummy. Where lands can only occasionally produce a second crop either from their quality or from the nature of the water supply the Government under this principle need by no means forego the demand due upon the 2nd crop, but a broad comprehensive view of the circumstances of irrigation taking one year with another will enable the settling officer to arrive at a fair consolidated assessment for such lands. If it is objected that new irrigation works such as anicuts, &c., will convert large tracts of single crop land into double crop cultivation, and that the Government will lose the advantage of the improved supply of water, it may be replied that it will be consistent with the views of Government already expressed on the introduction of such extensive schemes to levy a general additional rate as a compensation for the cost of the increased supply of water, and to embody this with the previous assessment. Or, if a graduated water rate is introduced the land would simply pass from a lower to a higher grade for the adjustment of the assessment under its improved irrigation.

Consolidation of small holdings.

29. On the subject of consolidating numerous small fields into larger holdings the Court of Directors in para. 8 of their Despatch of 17th December 1856, refer to the plan introduced in the Bombay survey. Small fields under the prescribed minimum size are clubbed together into a Survery field, but the occupants of component patches are not placed under joint responsibility and their previous rights are not interfered with. But the prospective rules are :

1st. No further Subdivision is permitted, and, although the interest in the land may be divided, the integral field remains liable for the revenue.

2nd. On one of the component parts or shares becoming vacant by death or default, the ryots holding the other portions of the survey field are required to arrange among themselves for the occupation of the vacant portion, or are to vacate their own shares so as to leave the whole field to be engaged by one individual. The Court add that no difficulty has been found in carrying this into practice under the reduced and equalized assessment.

30. The Board in para. 19 of their Proceedings of 15th July 1857, state the legal difficulty in ejecting a ryot who may refuse under the 2nd rule to take up the land of his deceased neighbour lying within the limits of the same survey field as his own. The attempt to enforce the compulsory liability or ejection in this Presidency where a large portion of the landed interests would be affected by it, would I believe be highly impolitic independent of the grounds on which restrictive measures as to the size of holdings are objected to in paras. 25 26 of Extract Minutes Consultation, 14th August 1855. In Bombay it seems to have been very rarely necessary to have recourse to the rule from the comparatively large size of the fields; and, in the exceptional cases in which it might apply, a discretion was also allowed for relaxing it where it would affect the long possession of any individuals (vide Rules 7 and 8 and foot note Printed Report in Bombay Survey 2nd August 1847, page 21).

31. The Court in para. 26 recognize the rights of Government to enforce the 1st rule and to declare that the fields actually occupied within a certain defined limit shall not be further subdivided, and that whatever division of interest may hereafter arise, the whole field will

continue liable for the whole revenue. In order to prevent any obstacles to this rule being created in the Courts of Law, it will be necessary that it be made a specific condition in the puttahs under which the lands will be held.

32. Paras. 26 and 27 of Extract Minutes Consultation, 14th August 1855, point out the improved revenue administration as the remedy for the present unsatisfactory state of things in the numerous petty holdings, and the Board in para. 17 of their Proceedings on the subject enumerate 3 rules calculated to aid in introducing a change to a better state of things without interfering with existing rights, and a 4th might be perhaps added as follows: That on any petty holding forming part of a survey field becoming vacant, the occupants of the remaining portion of the latter shall, in preference to other ryots, have the prior claim to its occupation.

33. With reference to the views of the Board in para. 18 of their Proceedings regarding the minimum size of new holdings, that the limit should be fixed with reference to the amount of assessment, rather than the extent of land, I would observe that this seems desirable, with reference to the circumstances of the cultivation as well as the simplification of the accounts, for it is found in practice that the deep rich soils paying the higher assessment, require much more labor in their preparation than the lighter soils, so that taking a pair of ploughing bullocks as a measure of a ryot's cultivating resources, the assessment rather than the acreage would suit itself to the circumstances of occupation.

Remission of Assessment for fallow proposed by the Board.

34. The proposition contained in the next para. of the Board's Proceedings, that a ryot after holding a field for 3 years consecutively should be allowed to leave it fallow or waste for a 4th year without paying for it, is one on which a decision seems necessary. It seems to me the simplest plan that the frequent necessity for leaving some description of lands fallow, while others can be cropped for many years consecutively, should be one consideration in the valuation of the land for the settlement, but if the proposed provision for the contingency of fallow is made, of course this must form no consideration in fixing the Assessment.

35. The meerasee tenure, the plan for securing large holdings, and the system of assessment in Cuttack as applicable to Madras enumerated in para. 3 and treated of in paras. 23 to 29 of the Board's Proceedings of 15th July 1857, do not seem to call for notice by me at this time; but the first and last of these subjects may be resumed as occasion may require at a future stage of proceedings, while the second subject seems already placed in a position ready for the final decision of the Government.

Fees of village servants; whether to be included in the Assessment.

36. The subject of the fees of Curnums and other village servants is connected with the formation of the Assessment. Formerly during the prevalence of the sharing system in parts of the Presidency, these fees were paid out of the gross produce before the division of the Government and ryots' shares, so that a moiety was contributed by the ryot. In other parts also where there has been a money Assessment, it has been customary for the ryots to contribute towards the support of these servants either in grain or money, and in some places these fees constitute the sole ostensible emoluments of the parties. Again, elsewhere on the sharing tenure being superseded by money rates, as in the wet lands of Guntoor, the grain fees have been commuted to fixed money fees. In accordance with the established usage of the country, or at least of great parts of it, the Government might fairly expect that in the settlement the ryots should contribute towards the emoluments of these functionaries. But it seems very inexpedient that the Curnums and other village authorities that are servants of the Government, should be left dependent upon the ryots for the receipt of their emoluments, and the portion of these falling to the village Moonsiffs and Curnums, and the corresponding offices in the Southern Districts might be estimated and included in the settlement leaving the Government to make the distribution of this with such addition as may be necessary for the respectable support of the office, according to certain fixed rules. These officers should then be strictly prohibited from levying fees. This course seems in accordance with the view expressed by Government in Extract Minutes Consultation dated 6th December 1847, para. 35. The other village servants whose services are rendered to the community, such as the Carpenter, Smith, Washerman, Barber, Potter, &c., have no professional duties to discharge to the Government, and it may be left to the

villagers to remunerate them for their good offices in any way they think proper.

37. It is understood that a proposition for placing the emoluments of the village servants in the 5 Districts of the Northern Circars has been submitted to Government, in which a large charge to the State is contemplated for the purpose. If a portion of the emoluments is contributed by the Ryots as suggested above in conformity with the custom of the country, the question of expense will become one of less embarrassment. It seems a fitting time perhaps for the disposal of the matter not only as regards the particular point of fees above stated, but with reference to the simplification of the duties of some classes of the village servants which will result from the new Survey settlement, and also to the allotment of Enam-lands proposed for the vetties, which if now carried out, would be entered according in the survey maps.

38. I would take the opportunity of pointing out that much uncertainty exists at present as to the recovery of the emoluments of village servants from the ryots, Regulation 6 of 1831 provides for the recovery by a summary process of "emoluments annexed by the state to various hereditary village and other offices;" but it would seem difficult to bring the fees of the Curnums and other village officers under the definition of having been "annexed by the State," and although they seem to rest on an unquestionable prescriptive right, their recovery from the numerous members of the community by the ordinary process of the Civil Court would not be easy.

If the proposition of including these fees in the new settlement as above described is approved of, it may perhaps be desirable to include the subject in the legislative enactment understood to be in contemplation for the realization of the land Revenue of this Presidency.

Road Fund.

39. In North and South Arcot the extra cess for the Road fund is fixed at 1 Anna per Cawny. These are given as specimens for the general adoption elsewhere. It seems fairer to make the cess a percentage on the Revenue than a fixed rate on the area of cultivation, for in the latter case it is evident that the least productive lands pay equally with the best, while in the former case the tax would fall more in proportion to the ryot's resources from the land, and the advantages be derived from the Roads in conveying his produce to market. This item like the last might be emerged in

the general rates of assessment instead of being levied as a separate cess, but it should be adjusted to its proper head in the Collector's books. It seems also necessary in this as in the preceding instance, that legal provision should be made for its collection, so as to prevent any future combination of evil disposed persons for its evasion being successfully carried out to the embarrassment of the operations conducted from this fund.

Classification of Soils.

40. The general principles upon which the classification of the soils should proceed are laid down in paras. 13 and 14 of Extract of Minutes of Consultation 14th August 1855, and I have reserved this subject to the close of this communication as it is the starting point of the plan of procedure. But before entering into this, I may notice one point which requires to be distinctly laid down to prevent uncertainty in action. It is this. In the first process of classifying lands according to their productive capabilities, it is presumed that the principle is to be observed of classing the soils according to their natural intrinsic character without reference to their subsequent improvement by the cultivators, or to any distinction of the kinds of produce raised, and that garden lands and fruit plantations, which, through the application of labor and capital on the part of the ryots in providing irrigation and other artificial improvement, have become so valuable as to enable them to pay a very high assessment, should be put on a footing with ordinary poonjah lands of the same natural intrinsic value in their unimproved state. This will probably, in some Districts at least, cause a considerable decrease of revenue, which, judging from past experience in some localities, is not likely to be immediately made up by the extended cultivation of lands of this description, for the introduction of the rule that new garden cultivation at the ryot's own cost is only to be charged with the dry rates of assessment does not seem to have had the effect in some localities (though it may have in others) of largely encouraging this particular branch of agriculture, which is affected by the consideration of surplus capital, demands in the market for specific produce, &c. I conclude that the general principle of fixing a certain portion of the gross produce on assumed net profits of the land in its natural and unimproved state is to be unhesitatingly followed, trusting to the eventual increase of revenue to be expected from the liberality

of the measure, without regarding so much the more immediate consequences, unless indeed it may be determined to make any large reductions of revenue of this kind, progressive.

41. I would also in this place observe that in some places the improvement in garden cultivation may have been made with the aid of what are termed "Sircar" Wells. I am not able to say how far these wells may have been constructed at the public cost, or whether the right of Government to them may have arisen simply from their being made in Government lands, on the same principle as all trees reared by the ryots in their fields have not hitherto been considered as their property but that of Government; or again, the title to many wells in localities where land has been thrown out of cultivation may have lapsed to Government. It may be a question whether the Government would be disposed to maintain any such rights as those above described accruing to them from other sources than the actual expenditure of public money, particularly as what may be called Sircar wells in one District would probably be classed as ryot's property in others. Where irrigation wells have been built at the public cost and are kept in repair by the ryots, a light wet assessment may be fixed upon the lands irrigated by them.

42. Having noticed the preliminary points and other matters which seem to require decision before any definite rules of procedure can be laid down, it devolves upon me to sketch as far as I am able at this stage a plan of initiatory operations. The Board and the Government will be aware of the great difficulty of doing this with any degree of certainty before I have had an opportunity of collecting the local information and many essential data that appear requisite, and also of the uselessness of attempting to lay down rules in any detail which must be deduced from practical observation and actual operations to give them any real value. The limited period also that my attention has been directed to my present duties has not admitted of my going through more than a fraction of the mass of papers relating to the Survey and Assessment elsewhere, and even what may be deduced from experience in other places might with advantage be tested for the present purposes before indiscriminately adopting it under circumstances, which may render it not the most suitable mode of procedure. It is therefore under the greatest disadvantages and with no little diffidence that I enter upon any thing like a plan of even preliminary proceedings.

43. The mode of classification, I would propose in accordance with the view taken by the Board, as well as by myself of the preference of a money to a grain standard of assessment may be sketched as follows.

There seem to be generally recognized 3 or 4 broad distinctions of soil, viz.

1st. The Regar or black, which is chiefly the deep rich lands commonly called "Cotton Soil."

2nd. The Musub or mixed, easily distinguished from the last by the admixture of sand and other earths.

3d. The Red, characterized by its gravelly features and often formed from disintegrated rocks ; and to these may be added.

4th. White or brackish and other inferior soils that will not bear classification with the others, and in this pure sand may be also included.

44. The average fertility of these kinds of soil is also generally admitted to range in the above order, but the grades of fertility in each kind are so wide that a single rate for each will not suffice. For instance, the inferior sort of Regar, No. 1, may prove no better in productive power than the best of the red, No. 3. It is essential therefore that the rates should be further multiplied to meet the simplest plan of classification, consistent with obtaining a proper Estimate of the relative powers of the soil, and perhaps 3 rates each for Regar, Musub and Red, and 2 for the last description of soil will be found about the mark, while one might be added as an extra rate for Regar so as to include rich alluvial deposits under that head. This will make altogether 12 rates for dry lands and may be illustrated as follows :

	Classes.	Relative productive power.
Regar Soil........................ No. 1	...... 1	 4
	2	 3
	3	 2
	4	 1
Musub ,, ... No. 2	...... 5	 3
	6	 2
	7	 1
Red ,, ... No. 3	...... 8	 2
	9	...... 1¼
	10	...... ¾
Extra .... No. 4	...... 11	...... ½
	12	...... ¼

45. But as the values of classes 2 and 5 are the same, and also of 3, 6 and 8, and again 4 and 7, the total of rates would be only 8 or perhaps less as the above relative powers are mostly hypothetical, and conclusions on this point must be arrived at from further tests and investigations, which will require much patient consideration. It may be found necessary, also somewhat to vary the scale of classification to suit the different circumstances of the several Districts, though perhaps not materially. The relative productive powers should be given in terms of money representing at a moderate market price of about 25 per cent. of the gross produce. The irrigated lands, if the plan of fixing a water tax in addition to a dry rate of assessment is abandoned, may be more easily classified, as paddy being taken as the universal crop, the gross produce will readily fall into gradations without the same reference to different kinds of soil as in dry crops, for the constant supply of moisture does away in some measure with the grades of fertility of each specified kind of soil. Probably a scale of from 2½ or 3 Rs. to 10 or 12 Rs. would be required to meet all circumstances.

46. At first sight it may seem that the above plan is too complicated particularly in the dry classes, but it is to be remembered that the whole will not often apply to any one village, and after a careful inspection it may be sufficient to fix only 3 or 4 classes for the whole lands in a village. It must be also borne in mind that the plan is consonant with the general ideas of the cultivating classes to whom the process ought to be thoroughly intelligible.

Assessment of the land.

47. The gradations of productive power being thus found in terms representing 30 per cent. of the gross produce, the next step is to calculate the other incidental items which should enter into the valuation of the land. The most important perhaps is the proximity or distance of the fields from the village. This should be a per centage on the productive powers of the lands as above calculated. Without further practical experience and enquiry, I would only suggest in illustration that an addition might be made for favorable situation on some such scale as the following:

	Yards.		Effect of addition of rates to 2 Rs.			Do. added to 1 Rupee.		
Within	200	$\frac{1}{4}$ or 25 per cent.	2	8	0	1	4	0
yards of the	400	$\frac{1}{6}$ 16·66 ,,	2	5	4	1	2	8
village.	600	$\frac{1}{8}$ 12·5 ,,	2	4	0	1	2	0
	800	$\frac{1}{10}$ 10 ,,	2	3	0	1	1	6

From 800 yards to 1 mile I would not make any distinction, but beyond 1 mile for the next ½ mile perhaps a percentage might be taken off, and for any thing beyond, a further percentage. All these details must afterwards be more accurately arranged.

48. The facility of marketing the produce with reference to local marts or sea ports is next to be considered, but the calculation for these items must be made after enquiries for each locality; generally one rate will apply to one or more villages.

49. This as well as the last item will be based upon calculations to be determined by the settling officer, and not be left to the discretion of the native classifiers. The general character of the sub-soil, the depth from the surface of the land at which water is found for artificial irrigation, and several other items of the valuation will fall under the consideration of the assessing Officer as operations proceed, and should I think be determined upon broad general principles without too much attention to minute distinctions in each field.

50. The above operations ostensibly proceed on the basis of the gross produce of the lands but the Court of Directors consider that the net profits should be considered as the proper standard for the settlement. Upon a careful consideration of the subject it may be found that the results thus obtained will more nearly represent a proportion of the net profits than of the gross produce, for in the first instance there are the straw and other miscellaneous items as described in para. 21 above, which go towards the expenses of cultivation, and these expenses are in reality further adjusted in the application of the rule for regulating the classification according to the advantages of proximity to the village, which

consist chiefly in reducing the ryot's labor and expense of cultivating and manuring. I question much whether any further calculation except perhaps in special cases would tend to place the assessment more correctly on the basis of net profits. I have mentioned 25 per cent. of the gross produce as the original basis as the corrections for situations, Markets, &c., will be quite as much, or more additive than subtractive.

51. The original classification being thus modified by the application of corrections minus or plus as the case may be for the other items which enter into the valuation of the land, it is evident the results will come out in fractional parts of Rupees, and these again must be reduced to a scale of final rates of assessment. If gradations on dry assessment of so small a multiple as a quarter of a rupee are retained up to 1½ Rs. and ½ rupee as the increment beyond, the whole might range within 11 or 12 rates, and the same number would suffice for wet assessment. In the latter, I have purposely kept the integer rupees in all cases although the gradations might be wider apart, as the corrections for proximity to villages or markets and other circumstances of the valuation will require small fractions to be applied to the orignal classification and greater intervals in the rates would involve unnecessary loss by striking out larger sums in bringing the assessment to its final rates.

52. The scale that I propose to myself for trial would be somewhat as follows; but as it is in a measure hypothetical it may be modified on further experience.

Dry		Per acre.	Wet Single Crop.		
1st	Class	4 Rs.	1st	Class	10 Rs.
2nd	,,	3½	2nd	,,	9
3rd.	,,	3	3rd	,,	8
4th	,,	2½	4th	,,	7
5th	,,	2	5th	,,	6
6th	,,	1½	6th	,,	5
7th	,,	1¼	7th	,,	4
8th	,,	1	8th	,,	3½
9th	,,	0¾	9th.	,,	3
10th	,,	0½	10th	,,	2½
11th	,,	0¼			

Although it is necessary to have a comprehensive scheme to take in all the varying circumstances of a large area of country, the details will probably be found simple, and the average number of rates in a village may perhaps not be above 3 or 4, which seems sufficiently simple for all purposes of accounts. With regard to the maximum rates it may be remarked that they should not be fixed so low as to sacrifice the revenue on the best descriptions of soil, which are best able to pay it, and a high maximum rate by no means brings the necessity of raising the general standard too high, while it conveniently provides for exceptional cases, and as respects the final scale of assessment containing more grades than that of the classification of the soils given in paras. 35 and 36, it may be observed that the additional items which enter into the valuation render this necessary from the numerous fractions resulting from the calculations.

53. As all future subdivisions of fields will be prohibited, and a maximum limit fixed for them, there should be only one class fixed for each field, the average being taken if there is variety of soil. This will immensely simplify the accounts, for in some places at present a single acre may under the existing classification fall under 3 or 4 or even more rates which multiplies the labor of all detail accounts in nearly the same proportion.

54. Although the classification as above described will proceed upon the examination of every field in detail, the whole operations should be guided or checked by a more general and comprehensive view of the features of the country. For instance upon taking up a District for the new assessment, one of the first things the settling officer should do is to make himself acquainted with its topographic features, the descriptions of soils prevalent in different parts whether light, sandy and gravelly in hilly or high localities, or the richer alluvium prevalent in interspersed valleys or in Deltas or other tracts; the influence of rivers or jungle streams in fertilizing the lands by preserving moisture near the surface, or providing ready means of artificial irrigation. These and other particulars carefully collected would enable the settling officer to classify first the Talooks of the District, and then the several villages in each Talook in grades of fertility, which should be carefully compared with the results deduced from the detailed valuation of the fields.

55. Again, in judging of the bearing of the present assessment, it will be desirable to compare the cultivated area; the average rate of assessment and the actual collections of Talooks or groups of villages, in

order that it may be seen whether the cultivation and revenue have progressed or not, and whether the rate of assessment may have affected the result. Although it will be useful to the assessing officer to gather this *prima facie* evidence of lands being over-assessed, or moderately taxed, the new assessment should be a calculation independent of past average revenue, and not follow its inequalities and excessive rates.

56. The village maps may also be made use of in presenting to the eye the characteristics of the soils by adopting a coloring for each of the 4 broad distinctions, and indicating on each field the rate per acre fixed upon it, and will thus be a valuable aid to the assessing officer. This will require a few more copies to be printed as it will take 4 or 5 copies for the Native classifiers and for rough and fair copies for the European Superintendents, but this will be simply the additional cost of the extra paper.

Proposed Establishment for the Director.

57. As regards the Establishment necessary for the several duties, I feel also a little difficulty as the circumstances of the settlement in the N. W. Provinces are so different from the Ryotwary settlement, that the Establishments entertained there would be no guide here, and so far I have been unable to gather any information as to the Establishment employed in the Bombay Presidency which might probably afford me some help. I must earnestly urge the necessity of this part of the plan being considered entirely experimental, and of discretion being allowed (as was the case in the early survey Establishments) to vary the salaries as occasion may require within the aggregate amount.

58. The Establishments I propose for trial are given in the appendix, upon which I may offer a few remarks. That of the Director will mostly require qualifications in two languages, as the operations in the North and South of the Presidency will be conducted in 2 different languages. The travelling also occasionally on circuit, which will be a condition of employment, will subject it to more inconvenience than is the case with the Collector's Establishments, who never go out of their own District, or the reach of their relations, while the Director's office will be required in some cases to travel some hundreds of miles. Travelling batta will be drawn however, it is presumed at the same rates as are paid to other Revenue servants, but upon consideration of the greater inconvenience and the difference in the circumstances, I beg

to recommend that the Director's Establishment be permitted to draw this batta for the whole time they are absent from Madras without the application of present rule of its cessation after 10 days' residence at any one place. The Peons also will be entitled to batta in the same way as Peons of the Collectors' Establishment deputed beyond the limits of their District. This arrangement, if approved of, may tend to reconcile the persons employed to the out station duty, to which there seems to be a general aversion among servants engaged at Madras. It may be observed also that the portion of the Establishment of the Revenue Board that was attached to the Commissioner in the N. Sircars was allowed to draw one third of their salaries as extra pay during the time of their absence from Madras, as well as the usual travelling batta of the Revenue Department when on Circuit with the Commissioner. My recommendation therefore I trust will be considered only moderate.

59. As regards the Establishment of the Director it will be easily understood that the aid of a Native officer well versed in revenue matters and of good local experience and judgment, is needed in the formation of plans and rules for the procedure of the assessment, which it will be remembered must take place in the vernacular languages, in which will be recorded all the details of the operations, so that their check and control to be effectual must be through the same medium. Much local information will also have to be acquired from accounts and other sources in the vernacular. Though of course much must rest with the European Assistants appointed to superintend the several assessing parties as regards the accurate preparation of vernacular details, it is presumed that the whole burden of responsibility cannot be thrown upon them, and that the Director will be required to look into the vernacular accounts of the Settlement. The Director's office in this respect differs from other controlling offices in that it has to secure a permanent record in the vernacular of the Settlement operations, while in the latter the whole transactions are conducted in English.

60. Considering the responsibility of the task which involves operations of a more permanent nature than those ordinarily conducted by a Collector's office, it might be urged that the Native head servant should be put upon a footing not lower than that of a Collector's Head Sheristadar, but as material changes are understood to be in contemplation with regard to the office of Head Sheristadar, and I am desirous to be rid of the pageantry which generally attaches to it, I pre-

fer the adoption of the title of "Chief Accountant" to which also I have assigned a lower scale of pay, which I hope may prove sufficient for the purpose. Assistants have also been allowed as seem requisite. In the English Branch many important duties will devolve upon the heads of the Establishment, who must be suitably paid in order to secure properly qualified persons. The total of the Director's Establishment is Rupees 1502 per mensem, or Rupees 18,024 per annum, to which may be added the extra charges when on circuit of Rupees 104 per mensem, or say for 6 Months or the year Rupees 624, which added to the above makes the aggregate for the year Rupees 18,649.

Proposed Establishment for Deputies or Superintendents.

61. For each assessing party under a Deputy or Superintendent, I propose a Head of office on a salary equal to a Deputy Sheristadar with other servants to aid in superintending and checking the assessing operations, and arranging reports and other papers for the Director. This Establishment amounts to Rupees 507 per mensem under each Deputy or Superintendent. I propose to have 2 responsible officers on pay equivalent to that of a Tahsildar with a small allowance of travelling batta to supervise on the spot the classifiers, of whom there will be 20 under each and 3 Gomashtas, &c. The classifiers may be distributed 2 or 3 to a village, so that the general features of the classification will not depend upon the judgment of a single person, and they may thus be more easily overlooked by the Supervisors, who as well as the classifiers must be paid well, to leave them no excuse for levying contributions from the ryots. The 2 Supervisors' parties are estimated together at Rupees 1,520, which added to the office Establishment of the Superintendent gives Rupees 2027 per mensem, or Rupees 24,324 per annum. It remains to be seen whether a Superintendent can work more than 2 Supervisors' parties, and whether the number of classifiers assigned to each of the latter is that which is the most advantageous, and the whole of the scheme must be considered as tentative, I would recommend that sanction should be granted for 2 Superintendents' parties, one to commence at South Arcot and Trichinopoly, and the other in Rajahmundry as soon as the survey is sufficiently advanced, a discretion should be permitted of somewhat varying the salaries particularly of the classifiers, if circumstances require it, within the limits of the aggregate amount, and also for remunerating the classifying party by a

fixed pay, and partly at a rate per acre on the extent of land classified; eventually 4 Superintendents' parties may be entertained.

62. I have not included servants for marking boundaries, who, as proposed in para. 15 of my letter of 16th Instant should be drawn from the Collector's Establishment and act under the responsibility of that officer, while the substitutes required in their place to prevent hindrance to the Revenue duties should be charged to the settlement Department. As a Talook Sheristadar or Peishcar seems a suitable person to be deputed on this duty, this extra charge may perhaps be for each Superintendent's party.

4 Persons at 30 Rupees for 6 months each,	Rupees	720.
8 Peons at 5 Rupees for 6 months each...	„	240.
Total per Annum...........		960.

but it is impossible to say exactly what the amount of salaries will be, and whether in all cases Peons may be requisite.

63. I may be allowed to point out that the salary named in para. 40 of Extract Minutes of Consultation dated 14th August 1855, for the Deputies seems an inconvenient amount, inasmuch as it admits of their being drawn off from the settlement Department to the office of Sub-Collector which is better paid. It is obvious that the Deputies must be persons of tolerable revenue experience for the satisfactory performance of their important task, and the interval between their qualification for this a few years service and their turn for promotion to Sub-Collector would be very short, which would be very detrimental to the work of the Department by the necessity of frequent changes of incumbents. But perhaps the expression of "about Rupees 1000" will admit of the adoption of a Sub-Collector's pay for the Deputies, which would have the effect of retaining their services for several years more, and when they would from the additional experience gained, be the more valuable.

64. The extent of land that can be assessed by each party in the year is not very easy of determination without experiment, but it may be safely concluded that the assessing party will proceed with more rapidity than the corresponding survey party, and as the proposed Establishments for the Settlement branch are estimated at less than those for the survey, when both are in full operation, the cost for the Settlement will be lower than that for the survey, and fall within the

estimate in para. 42 of Extract Minutes of Consultation of 14th August 1855, of 10 Rupees for 100 acres, or Rupees 65 per square mile; though at the onset it may be much greater, before the Establishments are completely organized and brought into full play.

65. Before further details of plans or any actual operations can be proceeded with, it will be necessary to entertain a portion of the Establishments now proposed for the Director, and at a very short interval afterwards one Deputy's party might be set on foot in the portions of South Arcot and Trichinopoly where the survey is the least free from the defects pointed out in paras. 20 and 21 of my letter of 16th Instant; while again a second party may follow the Rajahmundry survey branch within a few months of its commencing its work. The whole of the Director's Establishment will not be entertained till the operations become extensive, and it seems more difficult to define with accuracy what portion may be required to begin and progress with, than to undertake the responsibility not to incur any unnecessary expenditure in this respect. In framing these estimates for establishments, the matter of Enam investigations has not been taken into account, as no definite instructions have appeared on this subject.

Records of Survey and Assessment.

66. The preparation and arrangement of the permanent records of the Survey and of the Assessment will engage attention hereafter as the work proceeds. The materials upon which the details are written should be of a permanent character and secured from injury and interpolation by binding in volumes, although some additional cost will be incurred to secure this. It may suffice at present to add that it seems necessary that the Curnums should take a copy of the Field Registers and statements of assessment for their respective Villages, that a copy of the same should be lodged in the Talook Cutcherries and the Collector's office, while a copy will also be furnished to the Director's office for eventual record in the Presidency.

Arrangement for Extra Expenditure.

67. Arrangements will be required for passing Extra Expenditure such as salaries of persons drawn off from the Collector's Establishment for marking boundaries above alluded to, advances for boundary pillars and other marks, &c., and the Board will perhaps see fit to define these.

Revision of District and other boundaries.

68. One point I should perhaps have mentioned above is, that it seems very desirable that in the new survey of the country, the boundaries of districts and Talooks and even villages should be revised where there are great irregularities, and I would beg to draw attention in this place to the Rajahmundry District, to which it is proposed to extend operations. It will be observed that, some of the Rajahmundry villages are isolated in the Reylungy Talook of Masulipatam, and again that this Talook just into the Rajahmundry District, extending even to within 3 or 4 miles of Rajahmundry itself, geographically considered it would seem desirable that the whole of the Reylungy Talook and perhaps a part of Pentapaud should be transferred from Masulipatam to Rajahmundry, so as to improve the configuration of both.

A Sketch map of Masulipatam is sent in illustration.

The areas of the two Districts are given in the Maps of their survey between 1816 and 1824 as follows :

Rajahmundry	collectorate	4690	square	miles.
Masulipatam	do.	4810	do.	do.

If these figures are correct, the transfer would tend to equalize the size of the 2 Districts, and it seems also desirable independent of this consideration.

Concluding Remarks.

69. In conclusion, I must entreat indulgent consideration in the perusal of the observations in the earlier part of this paper on what appeared to me to be essential preliminary points to be determined before the settlement can be conducted with certainty and satisfaction, and also of the propositions for future operations which are of necessity but imperfectly sketched at the outset, particularly as I have not had the advantage of witnessing all the stages of discussion, through which this grand scheme has passed, or of collecting data expressly for the

purpose, or indeed of acquiring any local experience in the Southern Districts of the Presidency.

If however instead of shrinking from what seemed to be my duty of entering upon those subjects, which are not without some difficulty in their practical solution, I have gone into them at greater length than may be thought necessary, I trust this expression of my sentiments will not altogether be unsatisfactory, and that, instead of obscuring the subject by diffuseness, I may have contributed in some measure towards the several matters being placed in a position for final instructoins as far as these are practicable at this early stage.

Proposed Establishment for Director of Revenue Settlement.

		Rs.	A.	P.	Rs.	A.	P.
1	Manager, ...	250					
1	Assistant Manager and Indexer, ...	120					
1	Examiner, ...	80					
1	Head Clerk,...	70					
1	Do.	50					
1	Do.	40					
1	Computer, ...	35					
1	Writer, ...	30					
1	Do.	24					
1	Do.	17					
1	Do.	15					
1	Do.	12					
1	Record keeper, ...	80					
1	Translator in 3 languages, ...	80					
1	(Vernacular.) Chief Accountant, ...	200					
1	Deputy do.	75					
1	Assistant do.	50					
1	Do. do.	35					
1	Do. do.	25					
1	Do. do.	20					
1	Do. do. at 15, ...	15					
1	Record keeper, ...	45					
1	Moochee, ...	10	8				
1	Do.	8					
1	Dufter bund, ...	10					
1	Sweeper, ...	4					
1	Jamadar, ...	17	8				
12	Peons at 7, ...	84					
	Total per mensem, ...	....	...	...	1,502		
	Total per annnm, ...	....	...	...	18,024		
	Extra Establishment while on Circuit.						
1	Dresser or Apothecary, ...	50					
1	Duffadar, ...	12					
6	Peons, ...	42					
	Total......	104					
	For six months....	....	...	...	624		
	Total per annum........	....	...	...	18,648	...	...

Proposed Establishment for each Deputy or Superintendent.

		Rs.	A.	P.	Rs.	A.	P.
1	Head of Office, ...	140					
1	Head Goomastah, ...	50					
1	Do.	35					
1	Do.	25					
2	Do. 15	30					
1	Head Writer, ...	35					
1	Do.	15					
1	Translator, ...	40					
1	Moochee, ...	9					
1	Duffadar, ...	15					
6	Peons at 7,...	42					
6	Do. at 6, ...	36					
1	Dresser, ...	35					
	Total Office,......	....	...	...	507		
1	Supervisor 120 + Batta 15 Rupees	135					
1	Goomastah,...	30					
2	Do. at 15, ...	30					
6	Peons at 6,...	36					
16	Classifiers at 24 Rupees each,...	384					
4	Head Do. at 30, ...	120					
	Sadarwar,...	25					
	Total,......	760	...	...			
	Another Supervisor's Establishment as above,...	760	...	...	1,520		
	Total of each Deputy's party per mensem.	....	...	...	2,027		
	Total per Annum......	....	...	...	24,324		

4. Read the following letter from H. NEWILL, Esq., Director of Revenue Settlement; to J. D. SIM, Esq., Acting Secretary to the Board of Revenue; dated Madras, 30th October 1857, No. 42.

SIR,

I have the honor to acknowledge the receipt of your letter of 20th Instant and after a reference to the Superintendent of Revenue Survey to forward you a revised Statement of the Establishment proposed by him to be entertained at present, which it will be observed includes the items pointed out in your letter, and which Captain Priestley as stated in his note at the heading requests to be substituted in his communication of 21st Ultimo.

2. I may remark that in the item of first Assistant the full salary of 425 Rupees has not been entered by the Superintendent as he intends both the Assistants to rise gradually to the full salaries, it is presumed he considered the entry of 325 Rupees for the first Assistant sufficient with the full entry for the 2nd Assistant to cover the expenditure, but should the Board concur with me in thinking it the more proper course to enter the salary of 1st Assistant in full, I request the correction may be made accordingly in the item and in the total.

3. In quoting para. 8 of my letter of 16th Instant, the Establishment as first described by Captain Priestley it was thought that sanction would at the same time be obtained for the more enlarged scales marked D No. 1 and E No. 2, and that the salaries in these would be available as circumstances required. It is very desirable that the permission granted by the Government of India under date 8th September 1854, should be continued to Captain Priestley in the exercise of discretion in apportioning the salaries so as to provide for the work in the most efficient manner and to encourage industry and ability by the speedy hope of promotion, particularly as his judicious use of this discretionary power seems to have contributed in some measure at least to the satisfactory results already obtained.

3. Since my letter of the 16th Instant was despatched, I have received from Captain Priestley a rough estimate of the Establishment he considers necessary for preparing the requisite number of Maps and of the survey and as in the annexed Statement, I presume it does not include persons for working the lithographic Presses for whom an estimate was entered in para. 11 of my letter referred to.

4. I had in the meanwhile applied to the Chief Engineer to furnish me with an estimate of the probable cost of turning out the Maps in question of average sizes and numbers specified with the view to the recommendation suggested by the Superintendent of survey that the total amount of probable cost should be placed at his disposal to be laid out as he found best, but in reply the Chief Engineer informed me that no sufficient data were in his office to enable him to draw up even an approximate estimate.

NOTE.—The item of $1\frac{1}{3}$ party near the close of Statement D appears intended to show that the cost of the party organized according to this Statement would be equal to that of $1\frac{1}{3}$ party as originally sanctioned, so in the estimate E the cost is calculated at $1\frac{2}{3}$ of that of the original party.

Establishment for the purpose of preparing Maps for Lithographing.

		Rs.	A.	P.	Rs.	A.	P.
1	Head Lithographer and Draughtsman..	90	0	0	90	0	0
1	Do. } Draughtsmen and Lithographers competent to do the neat work thoroughly.	60	0	0			
1	Do.	55	0	0			
1	Do.	50	0	0			
1	Do.	45	0	0	210	0	0
	For tracing Work.						
2	Draughtsmen,... ... ... at 35	70	0	0			
2	Do. ... ... at 30	60	0	0	130	0	0
3	Assistant Draughtsmen, ... at 25	75	0	0			
3	Do. ... ... at 20	60	0	0			
3	Do. ... ... at 15	45	0	0			
7	Do. ... ... at 10	70	0	0			
4	Do. ... ... at 5	20	0	0	270	0	0
	Total Monthly.....	....	...	...	700	0	0
	For 12 Months...	....	...	...	8,400	0	0

(Signed) F. J. B. PRIESTLEY, Captain,
Superintendent Revenue Survey.

(True Copy.)

(Signed) H. NEWILL,
Director of Revenue Settlement.

Establishment at present proposed (to be substituted for the leaves between end of Modus Operandi and estimated scale of instruments, &c.).

No.	Designation	Rate	Rs.	A.	P.	Rs.	A.	P.
	Deputy superintendent 500 + 75 travelling allowance + 100 for contingent expences..................		675	0	0			
1	First Assistant if of 3 years service 350 + 75,425 if under 3 years service 250 + 75,325..		325	0	0			
1	Second Assistant 250 + 75 = 325......... .... Assistant to receive 200 + 75 till reported qualified.		325	0	0			
			——	—	—	1,325	0	0
1	Head Surveyor at 90	at 90	90	0	0			
2	Do. do.	„ 80	160	0	0			
			——	—	—	250	0	0
1	Deputy do.	„ 50	50	0	0			
5	Do. do.	„ 40	200	0	0			
3	Do. do.	„ 30	90	0	0			
			——	—	—	340	0	0
3	Detail do.	„ 35	105	0	0			
2	Do. do.	„ 25	50	0	0			
1	Do. do.	„ 20	20	0	0			
			——	—	—	175	0	0
30	Survey Ameens	„ 10-8	315	0	0			
			——	—	—	315	0	0
30	Goomastahs	„ 8-0	240	0	0			
			——	—	—	240	0	0
30	Volunteers	„ 3-8	105	0	0			
			——	—	—	105	0	0
1	Head Writer and Manager	„ 50	50	0	0			
1	do.	„ 30	30	0	0			
2	do.	„ 25	50	0	0			
3	do.	„ 20	60	0	0			
3	do.	„ 15	45	0	0			
1	Head Draughtsman	„ 35	35	0	0			
3	do.	„ 25	75	0	0			
3	do.	„ 20	60	0	0			
3	do.	„ 15	45	0	0			
			——	—	—	450	0	0
1	Duffadar	„ 8	8	0	0			
2	Do.	„ 7-8	15	0	0			
6	Head Peons	„ 6	36	0	0			
2	Tarem do.	„ 6	18	0	0			
3	Do. do.	„ 5	15	0	0			
		Carried forward...	......	...	...	3,200	0	0

			Rs.	A.	P.	Rs.	A.	P.
	Brought forward......		......	...	..	3,200	0	0
3	Tarem peons	at 4-8	13	8	0			
6	Do. do.	„ 4	24	0	0			
13	Measuring peons	„ 5	65	0	0			
21	Do. do.	„ 4-8	94	8	0			
13	Do. do.	„ 4	52	0	0			
1	Moochee	„ 5	5	0	0			
3	Do.	„ 4-8	13	8	0			
1	Blacksmith	„ 5	5	0	0			
1	Chuckler	„ 4	4	0	0	368	8	0
1	Head station marker	„ 7	7	0	0			
10	Station markers	„ 5	50	0	0			
8	Do. do.	„ 4-8	36	0	0	93	0	0
	Measurement allowance at 1 Rupee per 100 Acres, found correct..		......	...	...	400	0	0
	Total monthly......		......	...	...	4,061	8	0
	For 12 months........................		......	..	...	48,738	0	0
	Deduct measurement allowance at 400 — 800; 3 Head surveyors at 10 = 30 — 60; 30 Peons on leave at ⅔d pay = 50 — 100		......	...	...	960	0	0
	Nett........		......	...	...	47,778	0	0
	Sanction........		......	...	...	41,910	0	0
	Excess per annum........		......	...	...	5,868	0	0
	Per mensem........		......	...	...	489	0	0

Besides the party at present in existence another one of similar strength should at once be organized.

(Signed) F. J. B. PRIESTLEY.

(True Copy.)

(Signed) H. NEWILL,
Director of Revenue Settlement.

5. Read the following letter from H. NEWILL, Esq., Director of Revenue Settlement; to J. D. SIM, Esq., Acting Secretary to the Board of Revenue, dated Madras, 4th November 1857, No. 49.

SIR,

I have the honor to acknowledge the receipt of Extract Proceedings Board of Revenue dated 30th Ultimo and to submit copy of a letter just received from the Superintendent of Revenue Survey in reply to an immediate requisition made to him for the information required by the Board, Captain Priestley has entered seriatim upon the points mentioned by the Board and I trust the explanation will now be found quite sufficient to enable the Board to forward the proposition to Government.

I have, &c.,
(Signed) H. NEWILL,
Director of Revenue Settlement.

Letter from Captain F. J. B. PRIESTLEY, *Superintendent Revenue Survey; to H. NEWILL, Esq., Director of Revenue Settlement, dated Cuddalore, 2nd November* 1857, *No.* 124.

SIR,

I have the honor to acknowledge the receipt of your letter of the 31st October 1857, and the enclosed Extract of Proceedings Board of Revenue, dated 30th October 1857.

In reply I have to state that Tarem Peons are such as are permanently attached to one person either Assistant Superintendent, Deputy or Detail Surveyor for a particular duty.

Those attached to the Officers carry messages, Maps, Accounts, &c., those under each Deputy or Detail Surveyor perform the same duties, and also warn village officials to attend, carry about instruments, &c.

In my report for the year 1854 I mentioned having been obliged to reduce the pay of Ameens from 20 and 17-8 Rupees per mensem to 10-8 and 10 Rupees, and in lieu to establish an allowance of one Rupee for every 100 acres found correctly measured.

The reason the measurement allowance for 2 months is deducted is that during the recess, field work not being carried on no allowance for measurement is required.

The Establishment mentioned is for one party only.

The list of instruments is headed "for Deputy Superintendent's party," and camp equipage for Superintendent's party this was written

when my official designation was "Surveyor General in the Revenue Department;" and Officers in charge of parties I then termed Superintendents, I now propose to designate them Deputy Superintendents. The list of instruments is for *one* party under a Deputy Superintendent.

Lieutenant Hessey being promoted to Deputy Superintendent the services of 2 Assistants will be required in the party already organized.

If another party is to be formed 2 more Assistants will also be required. Three of these vacancies can be filled up by Messrs. Puckle, Leggatt, and Beaumont.

In the list of Establishment forwarded on the 24th Ultimo 2 Assistants are put down, to enter on Rupees 275, to receive Rupees 325 on being found qualified, and on becoming Senior Assistant and of 3 years service to receive Rupees 425 per mensem.

I beg to observe I took for granted that my former reports had been understood as I had not had any call for explanation regarding them as to tarem peons or measurement allowance. At the end of the list of establishment forwarded on your requisition 24th October 1857, I observe that "besides the party at present in existence another one of similar strength should at once be organized."

My reason for commencing my list originally with Head surveyors is that the estimate for the pay of all below would little exceed what had been approved and sanctioned. The rate for assessments however were higher than in the original estimate and were therefore entered separately with some remarks intended to be explanatory.

The clubbing of writers and draughtsmen, &c., was also intentional as the necessarily scattered distribution of men employed on field work renders it imperative that prompt reward and punishment should be to a certain extent in the hands of officers in charge of parties.

In deference to the instructions I have received however the pay of each individual has been put down.

I was under the impression that sanction for as many parties of the highest rate as were considered necessary would be asked for, leaving me to raise them to their full extent as speedily as possible.

Lieutenant Hessey and myself being at present the only two Officers in the survey, it was my intention to leave Lieutenant Hessey with two new Assistants in charge of the party already organized to

continue his labors in the the south. At the beginning of next year I proposed to proceed myself to Rajahmundry and with the materials there available and a small number of Northern men already employed under me as a nucleus to organize a second party there.

(True Copy.)

(Signed) H. NEWILL,

Director of Revenue Settlement.

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6. Read the following letter from H. NEWILL, Esq., Director of Revenue Settlement; to J. D. SIM, Esq., Acting Secretary to the Board of Revenue, dated Madras, 5th November, 1857, No. 50.

SIR,

Referring to para. 60 of my letter of 28th Ultimo in which I propose to entertain, instead of a Sheristadar, a Chief Accountant on a lower salary, I have the honor to request the Board will be good enough to add the condition that the salary should be made progressive in the same way as that of the Head Sheristadars; for without this I fear I shall have little or no prospect of retaining the services of any useful and competent individual beyond a very limited period, as there will always be the inducement to seek promotion to a Head Sheristadarship in the Collector's Offices, and frequent changes in the head servants of the settlement office cannot but be very detrimental to the work.

I proposed in my statement that with the change of official designation the salary in question should be 200 Rupees per mensem, and I would now recommend that the scale* for Sheristadars in settled districts should be made applicable to the present case. This will give 60 Pagodas or Rupees 210 per mensem for the commencement, which is 10 Rupees above what is entered in the statement accompanying my report, but this small difference need not disturb the whole of the calculations, as the discretion solicited for regulating the salaries according to circumstances will enable me to arrange for this without exceeding the aggregate amount to be sanctioned.

* *Vide C. O. Board of of Rev. 27th March* 1820, *Printed Vol. p.* 4.

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1. The 1st, 2nd, 4th, and 5th of the above communications refer to the *survey*, and the Establishment required, 3rd and 6th to the *assessment* and the Establishment required.

2. The Government in Extract Minutes Consultation under date 11th September 1857, No. 921, R. D., para. 4 direct the Board to receive a 'plan of operations' from the director of Revenue Settlement, and the Superintendent of Survey, and prepare for Government a general Outline of the course which each Department should follow.

3. As regards the survey, the plan of operations proposed by Captain Priestley is the same as regards detail, as that on which his surveys in South Arcot and Trichinopoly have been hitherto conducted, according to his report of 12th February 1857, submitted to the Board by the Collector of South Arcot in his letter of the 24th February 1857, and referred to in the Board's Proceedings of 15th May 1857, transmitted to Government on the same date.

4. The first object henceforward will be to ascertain the points of the Great Trigonometrical Survey, and instead of using them, as has hitherto been done, to test the work *after* its completion, to make them serviceable as a foundation for the work to commence with, by taking one of them as a starting point for the Great Circuits, and working the Traverse to another of them. This with occasional Astronomical corrections of the bearing lines between stations will ensure complete accuracy in the main Circuits and from these minor Circuits each being the boundary of a village will be easily filled in. The main Circuits will take in about 150 square miles; the village circuits about 1 square mile on an average.

5. The Board have on former occasions hesitated to recommend the search for and connection with the points of the Great Trigonometrical survey because of the delay that might be caused either by the stations not being in existence or from the difficulty in recovering them. Major* Thuillier

* *Board's Pro. August 1st* 1857, *latter part of para.* 1.

having however stated* that the 'utmost facilities exist,' and the Government 'apprehending no difficulty† the Board may conclude that the doubts expressed by Mr. Newill in para. 4 of his letter of 16th October 1857, as to Rajahmundry may be equally without foundation.'

6. In the event of Great Trigonometrical survey stations not being in existence, the Superintendent of survey considers it would be necessary to apply to the Surveyor General of India to depute an officer to lay down the Trigonometrical points required. Mr. Newill seems to think an 'Extra Surveyor' entertained by Captain Priestley would be sufficient.‡ The Board are inclined to prefer Captain Priestley's suggestion. The duty is certainly one of much more importance than can be entrusted to an ordinary surveyor§ but at the same time it does not seem absolutely necessary that the survey should be delayed till the Trigonometrical stations are fixed. In the 'report on the survey operations in the lower Provinces, for the year ending September 30th 1855,' there is an entry (page 25) in reference to the Mymensing District, in the following words. "The Great Trigonometrical Survey has not extended to this "District, but several masonry pillars have been erected in convenient "positions at the extremities of the District, with a view to future con-"nection. Many objects of a permanent character have likewise been "fixed, and their positions computed and laid down on the maps, for a similar purpose."

* *Ex. Mins. Cons. 25th July* 1857, *No.* 741. *R. D. para.* 21 *of Major Thuillier's letter in Cons.* 1*st August* 1857.

† *Ex. Mins. Cons.* 14*th August* 1857, *No.* 815, *Revenue Department.*
In Cons. 24th August 1857.

In Cons. 20*th October* 1857.

Report of Captain Priestley para. 7, *of 'modus operandi.'*
In letter from Superintendent of Settlement 16*th Oct.* 1857, *in Cons.* 20*th Oct.* 1857.

‡ *From Mr. Newill,* 16*th Oct.* 1857, *para.* 5, *in Cons.* 20*th October* 1857.

§ *The Board find this is Major Thuillier's opinion, who seems to refer to this very case occurring in the last para. of page* 508 *of his "Manual"* (2*d edition.*)

7. The main circuits of about 150 square miles, having been completed and plotted, the village circuits of which they are composed, will be laid down from their traverse.* The only objection to these large circuits, which are so desirable in a *survey* point of view, is that it will take a long time to complete the traverse of a large circuit. Meanwhile the assessment must be at a stand still.

* *Para. 9 of Captain Priestley's letter.*

8. The present plan by which the survey operations proceed from great circuits to small, instead of, as at first, joining village circuits into one main, is a great improvement.

9. Each village being surveyed first by traverse round its boundaries and its area computed by the universal Theorem will have its interior fields separately measured, by what is known as the 'khusreh' method† and fully explained in the Board's Proceedings of 24th February 1854, No. IX. Revenue Selections. Captain Priestley has lately introduced the measurement of a diagonal line across each field which is a farther step to accuracy. Where within a village, there are *permanent* lines of division, either natural or artificial such as bunds of tanks, water courses, roads, ravines, ancient dykes, or the still existing land marks of old estates or sub-divisions, these lines should be carefully surveyed and mapped, in order that they may remain as a frame work in case at any future time it may be necessary to set out the smaller fields again owing to their more perishable boundaries, or fill in spaces now waste which may hereafter be taken up piecemeal for cultivation.

† *The 'khusreh' is properly speaking the Register or book in which all these field measurements, are detailed.*

10. The Board do not consider it necessary to explain the detailed method of computing, plotting, keeping field books, checking, colouring, &c. In all these points improvements have suggested themselves since the date of the Board's Proceedings of 27th February 1854 (No. IX. Revenue Selections.) The Printed "Rules for the guidance of the Revenue Survey Department" enclosed in Captain Priestley's letter to Mr. Newill, leave but little to provide for. The Survey books will now form part of the Record of each Collector's office and it will be necessary to take care that uniformity in size and in entry, be adhered to,

also that the material be better. The books also should be in a more convenient form than the present long slips, for they will eventually be bound. The Book of each village should be headed with a sketch outline shewing the station marks. The Traverses, and computation of area including those of the offsets, should then be shewn, and the comparison exhibited between the area thus obtained, and the sum of the areas of the interior measurements. An abstract should be inserted, shewing what extent is Circar, and what enam: how much *was* cultivated, and what was waste when surveyed, and what is the extent taken up (I) by tanks, rivers and channels. (II) by roads. (III) by topes. (IV) by house and gardens. (V) by other Perumboke. The Board still think the plan a good one, that the surveyor should open a column to show roughly the kind of soil, and what was the last crop grown. The extra trouble is very little as the surveyor must go over, and *see* every field, and such entries may be useful to the Director of Assessment as a check upon (not a guide to) his classifiers. There are many points which are easily attended to in the field, which it would be very difficult to pick up afterwards without going over the whole ground again.

In from Government 25th July 1857.

** Ex. Mins. Cons. 14th August 1857.*

11. With regard to the purely *topographical* detail as urged by Captain Thuillier in his Memo. of 6th May 1857 (paras. 21, 22, 32, 33, 34) now that the Survey is directed to be 'a perfect one'* there can be no hesitation as to the propriety of filling in every particular and giving a finish to the Maps which has hitherto been refrained from, on the score of expense, and not being required for a *revenue* survey. Captain Priestley is so thoroughly aware of the *practical* use to be made of his Maps, that he will know the object is not to make them merely *look well,* and he will thus probably dispense with the useless and confusing finish that is attempted to be given to the large Collectorate Maps that have been issued from the Chief Engineer's Office for many years past. It will not be necessary to finish *all* the Maps alike. Where several copies are made, some may be left blank except the mere village boundaries and fields, and the subsequent detail may be filled in according to the purpose for which they are required. For Revenue purposes, it will be sometimes better to dispense with the delineation of a Pagoda or a tope,

in order to leave space for the legible insertion of a name or a number.

12. The *scale* on which the Maps are to be prepared, now comes under consideration. Captain Priestley proposes to have *three* scales. No. 1 the original *village* Map, of 16 inches to a mile; No. II. the *Talook* Map of 2 inches to a mile, reduced from No. I. and No. III. the District Maps of ½ an inch to a mile.

13. No. I. is that selected by the Board in their Proceedings of 24th February 1854 (No. IX. Revenue Selections) Captain Priestley has found it suitable, and an inspection of several specimens satisfies the Board that it answers well for revenue purposes. It is very much larger than any thing attempted professionally in the N. W. Provinces but a ryotwar system, and the consequent necessity for plotting each field to scale, makes it incumbent. Major Thuillier approves of it (para. 32 of his Memo.) and in the Ordnance Survey of England, when it was determined to exhibit every field, a scale of as much as 25,344 inches to a Mile, was not considered too much.

14. Mr. Newill* proposes that for villages where the fields run large, the scale should at discretion be smaller, and to this there seems no objection as long as it is such that the smallest field can be properly plotted with room enough for its number to be written on it. As the *village* maps will not have to be *joined together* there is no absolute necessity for its being all to one scale, but there should not be more than *one* other scale, namely one half, or 8 inches to the Mile.

* *From Mr. Newill,* 16*th Oct.* 1857, *para.* 6.

15. No. II. Scale for Talook Maps, 2 inches to a mile, is very convenient, and specimens have been already laid before the Board and Government. Every topographical detail to the full extent required by Major Thuillier,† can be laid down, and they are large enough to exhibit the cultivated as distinct from the uncultivated portion of each village, the course of

† *Para.* 22 & 36 *of his Memo. By this Memo. it appears that the topographical detail was generally laid down by compass and plane table on the one inch (to a mile) Maps. In the Madras Survey they will be drawn in on the two inch Maps which is still better and reduced for the one inch.*

every channel and road exactly, and the space occupied by every tank. They are just large enough to show not only the station of the village circuit, but the actual boundary deduced from the offsets.* The *levels* also from some assumed datum can be shewn on them, as in a Map of this kind of the country near the Vellaur river in South Arcot exhibited by Captain Priestley. On this scale a map of the size of Hill's roller-map of Madras 5 feet 2 inches by 3 feet 2 inches, would represent 589 square miles, which is larger than most Talooks.

** In the one inch maps of the N. W. Provinces of Bengal, the line supposed to be the boundaries of the villages are the lines between the station points and not the actual boundaries. The scale is too small for that.*

In Consultation, 20th Oct. 1857.

16. Mr. Newill in para. 7 of his letter of 16th October proposes that a smaller scale be adopted for hilly, thinly cultivated tracts, but the same reason does not apply as in the case of the *original* scale. The Talook maps will be *reduced* by Pentagraph from the original scale, and it is as little trouble to reduce to 2 inches to a mile as to one inch. The only extra expense is the paper; and even though the maps of some Talooks may at present appear rather blank, yet progressive improvements can be well shown on them, and for Engineering and Geographical purposes they will require to be on the same scale as other Talooks.

17. The third and smallest scale proposed is ½ an inch to a mile. These are for "district" or portable maps. The sheets of the Indian Atlas are ¼ inch to a mile, so double that (linear) will be quite large enough for the purpose. A map the size of Hill's roller-map of Madras 62 inches by 38, will embrace an area of 9,424 square miles, considerably above the average of the Madras Collectorates. In the N. W. Provinces, the District maps are on the above scale. In Bengal where the average size of a village does not exceed 350 acres, the scale is double viz., 1 inch to a mile.*

** Major Thuillier's Memo. of 6th May* 1857, *para.* 38.

18. The mode of conducting the Survey (supposing it based on the Great Trigonometrical Survey points which Government insist on as a sine quâ non) may be considered free from uncertainty and not requiring material emendation, but there is a duty to be performed, and

that *thoroughly* at the same time involving considerable labor, before a single field is measured. The Board allude to the *Demarcation* of village boundaries and of fields. It was not permanently brought forward when the tentative survey commenced under Captain Priestley, as it was known that the Curnums professed to have a record of every field, and it was supposed the boundaries would be pretty well known. But experience has shown that the old Records (or Pymash Accounts) are either very obscure, or have been tampered with. They are all in the vernacular, and generally on loose cadjans and not only does constant difficulty and serious delay occur before the surveyors can get the field boundaries shewn them, but when shewn, the land marks are so vague and ephemeral, that the assessing officer when he subsequently comes to the village, is not able to distinguish one field from another. The very minute size of the fields in the Carnatic aggravates the difficulty, and it is one that must be taken vigorously in hand if the Survey is not to be a waste of money.

19. In anticipation of probable difficulty on this score, the Board in 1854 took some pains to obtain a legislative enactment which should be available to the Revenue authorities and they still consider Act XX. of 1855 one that meets the case as far as legislative authority can do so. But it appears that its provisions have not been as yet vigorously enforced; perhaps from the uncertainty whether Captain Priestley's survey was or was not to become a national work.

20. Captain Priestley in the 38th and following paras. of his communication of 21st September 1857, expresses himself strongly on the above subject, in fact the greater portion of his letter is occupied with it, as being the incubus on his operations. The Government in Extract Minutes Consultation under date 18th September 1857, No. 955, R. D. notice the correspondence that has taken place on the subject of boundary marks and call the notice of the Director of settlement to it. That officer in his Report of 16th October 1857 paras. 13 to 20 dwells upon this topic, but seems to be under the impression that the presence of a *settlement* officer invested with authority, and more assistance from the Collector's Tahsildars, will stimulate the Curnums to a proper execution of the duty. That matters will be on a better footing there can be no doubt, but it is too much to expect that a Collector's over worked establishment can undertake so intricate and laborious a duty as to see *personally,* to the marking out of every field.

There must be an establishment to move from village to village for this sole purpose, to *see* that the fields *are* marked out, and it must be under the control of some one whose word the Superintendent of survey can *rely upon,* when it is reported that the Demarcation is complete. It is in fact a duty which the Survey Establishment reasonably decline to undertake, and which a Collector's Establishment cannot undertake. Neither does it properly come under the head of "settlement operations." The Survey Department complain that they cannot effectually perform their duty because the revenue authorities have not defined the boundaries in a distinct and permanent manner, and do not carry out stringently the provisions of Act XX. of 1855, and from Mr. Grant's letter,* and other correspondence the Board have had, it appears that the Revenue Department complain that the Surveyors have pushed on their work in such a random manner, that they have repudiated enquiry into the actual boundaries of fields, and cut up the village into survey blocks which the ryots will not recognize, and to the blocks themselves they have left no defined marks by which they can be distinguished when the assessment officer proceeds to the village.

In from Mr. Newill 21st October in Consultation 19th Nov. 1857.

* *Referred to at the head of these Proceedings.*

21. The state of things above adverted to, is not universal, but it can only be altogether obviated by nominating a separate Establishment for Demarcation. In the N. W. Provinces, the Demarcation was only that of the village, a comparatively easy matter, but in this Presidency, if 500 fields are considered the average number in a village, the labor is increased just 500 times, and even more; for the village boundaries are generally known with more exactness than the field boundaries. In the lower Provinces of Bengal, where it is necessary to determine the boundary of every Mehal or Estate, which are sometimes only a single field, a Demarcation establishment is employed on that especial duty alone. Its strength according to Major Thuillier's "Manual" page 516 (2nd Edition) is as follows: 2 Uncovenanted Deputy Collectors on 400 Rupees a month each, 4 Peshkars at 40 Rs. each, and 12 Peons at 3 Rs. each. Major Thuillier refers to this subject in paras. 41-42-43 of his Memo; and remarks that "in Bengal the cost of Demarcation "including villages, and the minor Estates contained within them, is "very heavy, equal in fact, according to the present system introduced

"by the Board of Revenue, Lower Provinces, to the expenses of the Original Survey." Mr. Newill in para. 62 of his letter of 28th October 1857, proposes to draw a small Demarcation Establishment from the Collector's Establishment, charging their salaries to the "Settlement" Department, and considers that the extra charge may be 4 persons at 30 Rupees a month, and 8 peons at 5 Rupees. The Board consider this totally inadequate, and would prefer to take for a guide the Establishment found to be necessary in the lower Provinces of Bengal. The assistance of the village officers is attainable there as well as in Madras, but still it is necessary to have a superintendence, and that distinct from either survey or settlement operations, and the reports that have from time to time been published on the survey operations in the lower Provinces* prove that the duty is one of as much importance as either the survey or the settlement, inasmuch as without it, the others must fail.

* *Major Thuillier transmitted some of these reports to Government in Appendix E of his report. There are others in the Board's Office.*

22. The Board are not aware if the Government in Extract Minutes Consultation† 14th August 1855, No. 951, included a Demarcation establishment, in those proposed in paras. 37 or 42.

† *See printed Volume Survey of Madras Presidency.*

23. The expense of the proposed survey and assessment will be so heavy in the present state of Indian Finances, that the Board are somewhat embarrassed as to the mode of meeting the demand for Demarcation, but they would propose for the consideration of Government that the Assessment Department under Mr. Newill, occupy themselves at first with this duty. It is evident that the assessment officer will have nothing to do till the lands he is to assess are surveyed, and it is equally evident that the survey Department cannot commence operations till the boundaries are laid down, not only of every village but of every field. Under these circumstances Mr. Newill's Establishment cannot be better occupied than in undertaking the Demarcation, and this will avoid at present the alternative of being compelled to apply for another Establishment.

24. As no Demarcation can be properly conducted without some assistance from the revenue authorities of the District, some of the Talook officials might be employed in the mode proposed by Mr. Newill in para. 62 of his letter of 28th October 1857. This duty will also be a good training for the subsequent operations of settlement.*

* *In the lower Provinces of Bengal, a ' settlement' Establishment is not required.*

25. The Demarcation operations will embrace first, the deciding which *are* the boundaries (I.) of the village and (II) of each field, and secondly the preparation of those boundaries by land marks.

26. The Board do not anticipate much difficulty in deciding as to the village boundaries, but with regard to the *fields* there has already been considerable discussion. Captain Priestley in paras. 66, 67, 68 of his letter of 21st September 1857 dwells upon this point as one still remaining undecided: viz., what is to be considered a field? The old Pymash accounts†, by which the village authorities profess to be guided, are very vague, and in many instances the numbers originally attached to the field have been altered. Ryots have also encroached on waste, thrown small fields into one, &c., and the dimensions and shapes of fields have so altered in the course of years that even with the best intentions, when such a scrutiny as the Survey requires, is insisted on, the Curnum is at a loss. At the best the former Pymash boundary marks were not very definite, and now they can seldom be recovered. If the Curnum makes but one or two mistakes to the Surveyor, he throws out the *whole course* of numbers and the ground has often to be gone over again. The Surveyors also, for want of defined boundaries, have been in the habit of measuring and plotting as *a field* the patch of land *actually cultivated* by a ryot, who perhaps has encroached on another waste field or on two or three adjacent fields or has cultivated only *part* of a field though this is not discovered till a regular survey takes place. The Surveyors have termed this his " puttah holding" but the Civil Authorities have objected on the ground that this is not the ryots real holding, and if he only cultivates part of a field, the whole field should still be measured and map-

In from Mr. Newill, 16th in Consultation 20th October 1857.

† *Measurement.*

ped as such. The Surveyors reply is that the boundaries of the whole field cannot be defined whereas the actual cultivation *is*, and is in fact a field of itself. The rejoinder to this is that the next year the ryot may expand or contract the piece he has been cultivating, and then on the same principle *that* should be his field. Captain Priestley has repeatedly urged the Board personally to decide this question, but it is one which can only be decided by the officer in charge of the settlement, after consultation with the Officer in charge of the survey on the spot where the difficulties are said to arise. It seems a pity when most of the old Pymash entries of a village are correct, to throw out the series* because a few fields are misplaced or irrecoverable, but on the other hand where the cultivation holdings *generally* do not correspond with what are supposed to be the Pymash fields, it would be better to repudiate the Pymash accounts altogether, and lay down and fix the boundaries of fields *as they are* and put new numbers to them altogether. This would of course involve the complete retranscription of all the Puttahs and Curnum's accounts.

* *In the survey as far as it is gone the survey numbers, are altogether different from those known to the curnums and ryots.*

27. The question of survey fields will also have to be considered. Mr. Newill in paras. 29 et seq : of his letter of 28th October 1857 refers to this in a revenue point of view, but in the present place it is to be considered simply as a matter affecting the *survey*, as pointed out in para. 25 of the Board's Proceedings of 24th February 1854,† and para. 16 of their Proceedings of 15th July 1857. From the maps, and registers and other information which they had before them in 1854, the Board were led to hope that if the Surveyor were allowed to club together small fields, into areas of 1 acre for irrigated and 2 for non-irrigated, the Curnums accounts would be sufficient for filling in the small component fields; but this has not hitherto proved to be the case‡ and as when there is any difference between the Surveyor's area of the survey field, and the sum total of the measure-

† *No. IX. Rev. Sel.*

‡ *Para.* 15 *of Captain Priestley's Report on the operations of* 1855-56 *in letter from Collector of South Arcot of* 24*th February* 1857, *also letter from Collector of Trichinopoly* 7*th October* 1857* *enclosing one from Captain Hessey.*

* *In Cons. 13th March 1857.*

ments entered in the Curnum's accounts each has often had to be remeasured. The Board are of opinion that where the Pymash measurements are thus found untrustworthy, there is no alternative but to measure and map every field that is separately specified in the ryot's puttah, as long as that field possesses a number of its own in the old accounts.* In the Northern Districts where the fields run large, the irksomeness of this duty will be little felt.

* *This is the decided opinion of the Collector of South Arcot paras.* 20-21, *of his letter of* 24*th February* 1857, *in Consultation* 13*th March.*

28. After *settling* the boundaries, the next process is to MARK them, previous to the Surveyor coming to the ground, the Demarcation party will set up mud pillars called *Thaks* in Bengal at all the principal corners or at equal intervals, from which a *Thak bust* map is prepared as described in page 516 of Major Thuillier's Manual (2d Edition). This is the guide to the European Assistant who undertakes the Professional Survey. Captain Priestley observes in para. 58 of his letter that Curnums would be able to make a sufficiently intelligible one.

29. In paras. 60 and 61 of his letter, Captain Priestley proposes that the permanent (masonry of brick) pillars where the Theodolite has been placed should be set up immediately after the survey, but the Board agree with Mr. Newill† that this will be better done *during* the survey, under the superintendence of Captain Priestley's own people. The duty is too important and too exact to entrust to any but a professional man. It might perhaps be arranged to set up the masonry pillars before the angles are taken, and then the Theodolite could be placed on them and there would be no subsequent mistake. The difficulty of securing any thing like permanency in field boundaries is great, but with the supervision and authority of a revenue officer much may be done as Mr. Newill proposes in para. 16 of his letter of October 16th 1857 in reference to Extract Minutes of Consultation of 5th June 1857, No. 554, R. D. Captain Priestley states in paras. 56, 57, 58 of his letter that it would be a great assistance to the surveyor if at all events

† *In his letter of* 16*th October* 1857, *para.* 7.

In Consultation 20*th October* 1857.

it will be the duty of the demarcation officer to see that the boundaries of each field are 'pegged out' before the village is reported ready for the surveyor after the village and field boundaries of a defined tract of country (a whole Talook if possible) is completed, a rough map is prepared shewing each village circuit in position. This appears to have been done in Bengal,* as regards the *Pergunnahs* by the demarcation department, but it has not yet been attempted in Madras, nor do the Board see any specimens in Major Thuillier's "Manual." The Madras Talooks are considerably larger than Pergunnahs.

* *Page* 517 *of Major Thuillier's "Manual" (2d edition.)*

30. The Board have entered into all these details, because in fact the efficiency of the survey depends upon them, and there has hitherto been much misunderstanding and uncertainty on the subject. The Board anticipate that the employment of a special Revenue officer as Director of the Settlement and of Demarcation will greatly tend to encourage and enforce the assistance of the Village and Talook authorities, and that being vested with powers under Act XX. of 1855, he will be enabled to carry out the Demarcation to its full extent, especially if he employs for the time on his own Establishment, people of the District, or of the Collector's Cutcherry, for whom others can be appointed to act. There still remains the question as to who is to bear the expense of the boundary marks. The ryots are bound by Act XX. of 1855 to put up marks for their occupied fields and the expense of marking the waste fields is to be a charge on Government;† but the more substantial Theodolite marks will require a considerable outlay‡ for though costing only 12 annas each many thousands will be wanted in a whole district, besides the still more complete triple junction marks; hitherto the expense has been borne by Government. (From Collector of Trichinopoly 1st August 1857, No. 3087.)

† *See IV.*

‡ *In Cons*: 15*th May* 1857. *Board's Proceedings* 15*th May* 1857, *No.* 1603 *pára.* 9.

Sketches were forwarded to the Board by the Collector 2d March 1857.

31. Mr. Newill in para. 19 of his letter of 16th October 1857, proposes that the expense of all the boundaries shall be recovered in those villages where the new assessment is a reduction on the former

one, by setting off the expense against the first year's reduction, and in villages where the new assessment may not end in reduction that the recovery should be enforced under the Act. The Board are of opinion that it would be better to defer the introduction of a new assessment for the whole District for one year, in order to cover these and other expenses, and not make it a charge village by village. There is no doubt that the Beriz of every District will under the new assessment be reduced. As regards the Districts whose assessment has been already reduced, on general principles without a regular Survey, such as North and South Arcot, Nellore, &c., it will not be necessary to defer the new rates inasmuch as there has been no expense in respect to boundary marks. As regards portions of Districts such as parts of South Arcot and Trichinopoly surveyed but not assessed,* the Demarcation might commence as soon as Mr. Newill's Establishment is sanctioned and the expence of boundary marks enforced as stated above.

* *Mr. Grant who was appointed Additional Sub Collector on purpose, has been removed to Salem and his place not filled up.*

32. The Board would certainly have preferred that in the first instance before a settlement officer was appointed (whose duties can only commence when the survey is to some extent completed)† the Demarcation should have been in the hands of a special assistant to the Collector, and a Revenue officer of the District, he would have had more authority and influence and would have acted under the general instructions of the Collector, so that their arrangements should never run counter to each other, as may now be the case.

† *Para. 7 of these Proceedings.*

33. The establishment proposed for the survey (to be increased hereafter as operations extend) was submitted to Government in the Board's Proceedings of 9th Instant. A list of instruments required was also submitted, but the Board would certainly recommend that Captain Priestley be allowed to obtain what instruments he requires in addition to what has been now indented for wherever procurable either in India or England, and charge the same in a Contingent Bill, special sanction might be required for the purchase of any instrument costing about 300 Rs.

34. It is also proposed to attach a Lithographic Press to the survey, the cost of which and establishment required, will be submitted as soon as the requisite estimate can be prepared with more correctness than is at present attainable.

35. The Board now proceed to consider the nature of the *assessment* proposed, Mr. Newill's letter* at the head of these Proceedings embrace several questions connected with the assessment, but does not exactly propose a 'plan of operations' as expected in para. 4 of Extract Minutes of Consultation of 11th Sept. 1857, No. 921, R. D.† In fact it is almost impossible to do more than generalize previous to some initiatory experience in the field. Many arrangements that may appear precise and suitable on paper beforehand, will have to be considerably modified, and detail that will apply to one district will be found inapplicable to another.

* *Dated 28th October* 1857.
In Cons. 19*th Nov.* ,,

† *Paras.* 42 *to* 56 *of his letter refer to classification and will be considered further on.*

36. Mr. Newill commences with observations on the Extract Minutes of Consultation of 14th August 1855, No. 951 on the subject of a revised Survey and assessment; the Despatch of the Honorable Court dated 17th December 1856,‡ reviewing the above Minutes of Consultation, and the Board's Proceedings of 15th July 1857 giving their opinion as called for,§ on certain points in the Court's Despatch.

‡ *In From Government* 22*nd April* 1857, *No.* 372, *Revenue Department.*

§ *Extract Minutes of Cons.* 22*d April* 1857.

37. The first point that engages Mr. Newill's attention (paras. 4 to 13 inclusive) is the opinion of Government|| that land should be classed in *terms of grain,* according to its productive power. He points out the practical difficulties in the case of unirrigated land, owing to there seldom being a kind of grain which can be called 'staple' in any one District, and the fact that there is much land always cultivated with plantains, tobacco, betel, sugar cane, fruit trees, &c., or used for pasture, to

|| *Extract Minutes of Cons.* 14*th August* 1855 *paras.* 15 *and* 21.

apply a grain rent to which would be but guess work. It is true that the average value of the produce, whatever it is, might be estimated within certain limits of exactness, and to convert this into a money value, and then apply to the land its rate in terms of grain of the same money value would be the only alternative, but this is not what Government seem to require. Still the Board must acknowledge that it would be much simpler to enter money value at once; and it was on account of the anomaly of classing orchards, pastures, &c., as yielding so many bushels of *wheat* that the tithe Commissioners in England obtained the abrogation of this rule, and an Act* enabling them to fix the rent charge on the fields, in terms of *money*. Again as Mr. Newill observes,† if a fixed water rate is to be imposed, to be applied to all lands to which water is laid on, as proposed in para. 15 of the Extract Minutes Consultation of 15th August 1855, it will be requisite to ascertain the produce of lands now irrigated in terms of a grain which has never been grown on them, in order that this 'dry' rate may be imposed when there is no water for them.

* 1 *Vic. Cap.* 6-9, *Section V.*

† *End of para.* 5.

38. In order to meet what Mr. Newill supposes to be the object of an assessment in terms of grain, namely a periodical *revision* in proportion to the fluctuation in grain he proposes that, "the relative class "in which a field should rank, being "determined with reference to its productive powers, its situation, and "other advantages, and the assessment being fixed on what may be "supposed to represent the standard proportion of gross produce, or net "profit, the sum thus arrived at may be taken as the *standard assessment*; care being taken at the same time to ascertain the relative "value of agricultural produce. Variations may then be made "without difficulty in the money *payment*, with reference to any "fluctuations in the prices of grain, "&c." In para. 11 he states as follows. "Notwithstanding every effort that may be made to accomplish this‡ the conclusion arrived "at will§ result in reality, from necessarily following in a great measure the *inverse* process of first "fixing a money value, and then "converting it into grain, and it

Para. 10.

‡ *i. e. Determining by direct process, a grain assessment for each field.*

§ *i. e. Instead of being bonâ fide the result of calculations made for fixing a grain assessment on each field would be the result of an inverse process.*

"seems proper for me thus at the outset to clearly express my convic-
"tion in order to prevent any misapprehension hereafter.

. 39. While the Board agree with Mr. Newill that to apply a defined amount of produce of a particular grain to every field, is impracticable, they are of opinion that the grain produce must be the *basis* of all revenue assessments, and they are disposed to believe that it was not the intention of Government to record the assessment of the country in terms of grain but as it is now in terms of money. Still as a preliminary step it will be necessary to classify the lands according to their amount of produce, and value thereof. For the irrigated lands, which form the most valuable portion of the territory, it may be possible to frame a grain classification, the original record of which will be preserved with a view to reference in case of great fluctuations, although the ultimate assessment determined on will probably be in money. Also as regards the unirrigated land, in classifying the fields there may be many the produce and value of produce of which may be entered in the original records to shew the data on which the classification was originally made, although the ultimate assessment may be in money. The processes of *classification*, and of *assessment* are distinct, and the record of them should be kept distinct. Several fields in a village may be of the same *class* as determined by productive power, whilst they may ultimately fall into different *rates* of assessment owing to proximity of roads, canals, markets, &c. If a revision of the assessment is ever to be made, in consequence of great and permanent fluctuations in the price of *grain*, the per centage of reduction or enhancement, ought theoretically to be on what may be called the *normal* classification, made solely with reference to the produce. The Board however do not advocate frequent revisions, nor do they think that they should be altogether founded on fluctuation in price of grain, and therefore they attach no more importance to a grain classification, than what is due to it as the general basis on which the value of the land, and then the Government demand must be estimated.

40. In para. 13 of his letter, Mr. Newill refers to the proposition contained in para. 21 of Extract Minutes Consultation of 14th Aug. 1855, that the assessment should vary every 7 or 10 years with the rateable money value of the standard crop. The Board have already

28th October in Consultation 19th November 1857.

given their opinion on this subject in paras. 9 and 10 of their Proceedings of 15th July 1857. If carried out, the Government will of course be prepared to *raise* as well as decrease the assessment. The Board agree with Mr. Newill (para. 17 of his letter) that a periodical revision at stated intervals would not necessarily effect the object the Government have in view, for the phases of extreme variation may be passed through during the interval between 2 periodical revisions, for instance, if the revision is every 10 years, the variations in price may occur in the 4th, 5th and 6th years, and by the 10th prices may have settled themselves down to what they were at first, so that at the very time the assessment might most require revising (if it is to fluctuate with prices) it would remain unaltered. The question is however an unaltered one which will not affect the modus operandi of the assessment.

41. In para. 21 of his letter, Mr. Newill enters upon the subject of fixing the assessment with reference to the *net* and not the *gross* produce. The Board have given their opinion on this in para. 7 and 8 of their Proceedings of 15th July 1857. It is a question to which the Court of Directors attach considerable importance. Mr. Newill's views seem to be those of the Board, in considering it impossible to ascertain the net profit derived from each field but the proposed end may be attained by assuming a per centage of the gross produce to be expended in stock and expenses of cultivation, and fixing the assessment with reference to the remainder which may be considered the net produce.

42. Mr. Newill (para. 21) remarks that in assessing land with reference to the produce reaped and thrashed, the *straw* is not taken into account of value, and this is supposed to cover partially or altogether the expenses of cultivation. He observes that in the best lands in Guntoor, the value of the straw is about ⅛ of that of the grain produce, and in the poorer lands more than ⅕. The Board see no reason why the value of the straw should not be taken into account. They observe that Mr. Bourdillon, draws attention to the fact that in irrigated land the straw alone is worth 2½ Rupees a cawny,* and supposing an average nunjah field to produce 30 cullums at 5 cullums a Pagoda or 21 Rupees, the value of the straw is ⅛ or 12½ per cent.

* *Report on revision of assessment in North Arcot 23rd October* 1854, *para.* 20.

43. In para. 22 Mr. Newill notices the view taken by Govern-

ment and the Court of Directors as to abolishing the distinction between "irrigated" and "unirrigated" land, and classifying land with reference to its soil and productiveness *without* irrigation; and then adding on a water rate, when water is taken from a Government source. The Board in paras. 5 and 6 of their Proceedings of 15th July 1857 give in their opinion as adverse to this process, and Mr. Newill does the same. With regard to fixing the water rate in proportion to the *cost* of the water, the Board have expressed their opinion as adverse to it in para. 29 of their Proceedings on Rajahmundry dated 19th May 1857.

44. In para. 27 Mr. Newill discusses the question of 'double crop' assessment, as referred to, and they agree with him that a *consolidated rate* is best where there is a reasonable certainty of 2 crops being raised every year. To determine what lands come under this category is the duty of the assessment officer. It is not an easy matter to determine at what rate water shall be charged when used for a 2nd crop on lands assessed as single crop. The usual charge is 50 per cent. of the single crop rate. But there may be localities where the 2nd crop is more valuable than the first. It will be for the Director of Settlement to draw attention to these cases.

45. The subject of "small holdings" is discussed in para. 29 of Mr. Newill's letter, but except as regards 'survey' fields in the sense used in para. of these Proceedings, the question does not affect the mode of determining the assessment. Mr. Newill appears to hold the same views as Government* and the Board† on this subject; he however has misunderstood the meaning of the Court of Directors in their despatch of 17th December 1856, para. 26. When they direct that fields shall not be subdivided, they do not refer to *survey fields* as in Bombay, but to "the fields *actually occupied* and cultivated at the time of the survey" which may be less in extent than some area to be afterwards defined. For instance Government may declare that no *existing* field under 10 acres of 'dry' or 2 of 'wet' shall hereafter be subdivided; but if there are existing fields larger than that they *may*

* *Extract Minutes Consultation 14th August 1855, paras.* 24-25.

† *Proceedings 15th July* 1857, *para.* 19.
In from Government 22d April 1857.

hereafter be subdivided. There is no direction to determine an area which shall embrace several of the existing fields.

46. In para. 34 Mr. Newill enters on the subject of remission of assessment for fallow, noticed incidentally by the Board in para. 19 of their Proceedings of 15th July 1857. It is not a question that affects the assessment operations.

47. The fees of village servants referred " to by Mr. Newill in para. 36 of his letter have been taken into account in several of the old assessments. An estimate of the usual total amount of fees and perquisites has been made, and after deducting this from the gross produce, the remainder has been commuted to money, and shared between the Government and the ryot. But the amount, as well as the description of person to whom it should apply, has varied in different localities. There seem to be two classes generally of village servants. 1st those whose avocations are such as to make their services applicable only to the ryots of the village, as Barbers, Washermen, Potmakers, Chucklers, &c. and 2ndly those whose duties are not only requisite for the protection of the village, but cause the parties to become in fact servants of Government, such as Potails, Monegars, Curnums, Notacars, Taliaries and Toties. The Board are inclined to leave the fees of the 1st mentioned class (those fees being invariably in grain) to the people themselves, and take no account of them whatever in forming an assessment. As regards the 2d class, the Board are of opinion that the amount of their fees should be fixed on a per centage of the village collections, and that the question be not entered into as forming an item in estimating the assessment. This plan would necessitate the eventual resumption of all enams held on this account by either of the classes above named. When the object was to obtain from the ryot the utmost possible revenue that could be got from him, it was necessary to estimate what calls were made upon him for village servants, which long established usage had made binding on him, but when a low assessment is to be fixed, so as in all cases to leave the ryot a profit, it is no longer necessary to investigate what perquisites he gives to the artizans of the village. As to the servants of the other class, it would be better to make them dependent on Government at once, than to leave them to their present uncertain means of existence, subservient to two masters.

48. In para. 39 Mr. Newill adverts to the "road fund," and proposes to merge it in the general rate of assessment instead of levying

it as a separate cess. The road fund lately established in South Arcot, and proposed in North Arcot and Nellore, is not levied as a separate cess. The Board consider that the assessment may be made without any reference to a road fund, but it should be distinctly stated to the people that when the new assessment is imposed, a certain per centage (the Board propose 2 per cent.) will be added to the beriz of each Puttah and form a distinct entry in it for a road fund.

49. In para. 40 Mr. Newill discusses the "classification of soils," which he considers " the starting point of the plan of procedure." The subject has been noticed by Government in paras. 13, 14 and 15 of Extract Minutes Consultation 14th August 1855. The point on which Mr. Newill requires instructions is this. Are garden lands which through the application of labor and capital on the part of the ryots in providing irrigation and other artificial improvements, have become so valuable as to enable them to pay a very high assessment, to be put on a footing (as regards assessment) with ordinary Poonjah lands of the same natural intrinsic value in their unimproved state ? If this is to be done, he anticipates a considerable decrease of revenue in some districts, not likely to be made up by increased cultivation.

50. The Board are of opinion that though such lands can and do very well pay a comparatively high assessment yet that they ought to be put on a footing with the best Poonjah lands of the village, according to the system generally adopted of late years with regard to land under wells. The principle is of general application. All land should be assessed with reference to its productive capabilities under ordinary tillage, and not with reference to its present state where it has been improved by labour and expenditure of capital. This is not the native view of assessment, but it is the correct one to act on as far as circumstances admit, and it is not inconsistent with the proposition that 50 years hence Government should revise the whole assessment, and even increase it where land has been permanently improved since the last assessment was made.

51. In para. 41 Mr. Newill adverts to the distinction between private wells, and Government wells, apparently with the view of obtaining an opinion whether in the latter case the land watered should pay Poonjah teerwa only. The Board believe there are very few wells which can be proved to have been built at the Government expense, or kept in repair by them ; and in all except such exceptional cases as *may*

occur, they would propose that all wells be considered as part and parcel of the land on which they are sunk.

52. In paras. 42 to 56 Mr. Newill sketches a plan of "initiatory operations" which refer entirely to the mode of 'classification,' as regards unirrigated land, he proposes to ascertain the 3 or 4* distinct classes of soil known among the natives such as I. Regur. II. Massub III. Red. IV. Brackish, subdividing each (probably) into three varieties, and then to classify the *relative* productive power of each. As the best variety of one class will be on an equality probably with the lowest of a higher class, the rates will merge one into another, so as probably to be about 8 in all. He considers as regards these unirrigated lands (para. 45) that "the relative productive powers should be given in terms of money representing at a moderate market price about 25 per cent. of the gross produce." The irrigated lands he considers may "be more easily classified, as paddy being taken as the universal crop, the gross produce will readily fall into gradations without the same reference to different kinds of soil, as in dry crops," "probably a scale from 2½ or 3 Rupees to 10 or 12 Rupees would be required to meet all circumstances." After thus determining the gradations of productive power in terms representing 30 per cent. of the gross produce,† the next step will be to calculate the incidental items which affect the real value of the land, such as the distance from the village site. Within 200 yards 25 per cent. might be added to the normal rate, 400,600,800 yards $\frac{1}{6}$ $\frac{1}{8}$ $\frac{1}{10}$ to be added. The rates thus revised will be again affected by vicinity to large markets, sea ports, &c. These again will be revised with reference to depth of sub-soil, nearness of water to the surface, &c., that the effect of each or all of these items on the normal rates to be determined by the assessment officer on broad principles, without much attention to minute distinction.

* *The numbers given are assumed for example Mr. Newill does not actually mean to fix* 4 *classes. It must depend on local circumstances.*

† *The Board conclude the* 30 *per cent. refers to irrigated land, though the remarks in the same* (47) *and following paras. seem to refer to all land.*

53. In para. 50 Mr. Newill observes that though the above operations proceed ostensibly on the basis of the *gross* produce, the results

will nearly represent a proportion of the net profits, for the estimate of the straw is not included, and the variations of net profit arising from expenses of cultivation are partly met by allowing for distance from villages, from markets, sea ports, &c.

* *Para.* 51.

54. The results* will probably come out in fractions of Rupees, and if they are grouped together in Rupees, and quarters of a Rupee, the money rates on unirrigated land will probably not exceed 12. In irrigated land the increments of gradation might be partly in whole and partly in half Rupees, and all previous intermediate results thrown into the nearest Rupee or ½ Rupee. If 10 Rupees an acre is assumed as the highest rate for one crop land, and 2½ there would be 10 money rates ; so that eventually the whole money rates of the country would come out as follows :—

Unirrigated.		Irrigated	
Class.	Rate per annum. Rs.	Class.	Rate per annum. Rs.
1.	4	1.	10
2.	3½	2.	9
3.	3	3.	8
4.	2½	4.	7
5.	2	5.	6
6.	1½	6.	5
7.	1¼	7.	4
8.	1	8.	3½
9.	0¾	9.	3
10.	0½	10.	2½
11.	0¼	...	...

55. In para. 54 Mr. Newill observes that "though the classification as above described will proceed upon the examination of every field in detail, the whole operations should be guided and checked by a more general and comprehensive view of the features of the country," to which object he purposes to address himself personally, as also† to compare neighbouring talooks, as to their cultivated area, average rate of assessment and actual collections of past years. He proposes also to have som^ copies of the village maps

†*Para.* 51.

coloured with reference to the classes of soil, which will be one and easy and useful check on the details furnished by his classifiers.

56. The Board approve of the plan here sketched out, and they are fully aware that till Mr. Newill has made himself acquainted with the locality where his operations will commence it will be useless to lay down details of procedure.

57. The only observations the Board would now offer are that Mr. Newill has not stated if in classifying, he would do so village by village, or for the whole District that is to say if a field is in class III. for instance is it to be class III. in that village or class III. for the whole District? If the classification is eventually to fall into *Table* of *Rates*, the question is not of importance, but then it will be remembered that it will not necessarily follow that two fields in the same money rate, shall be of the same class as regards their productive capabilities. In classifying land in this latter sense, it will probably be found more satisfactory to do it village by village when the District is large, as the ryots know the relative values of their own fields, but not of lands in another part of the district, and therefore cannot assist the classifiers of the Establishment in laying down a scale that will suit all the lands of the whole District. The rates of the separate village scales when converted into money will merge together so as not eventually to exhibit a great variety of money rates; but it will be for Mr. Newill to consider if he can commence with a scale of classes for the whole District.

58. Neither has Mr. Newill stated how he intends to obtain the communication price, or value of the produce. It would seem from para. 10 of his letter that it is to be done at the same time as the classification of the field, but it will be probably better to class the fields according to their produce and investigate the commutation price separately and then apply it to each field. The determining a *proper* price at which to convert produce into money is of quite as much importance as ascertaining the productive capabilities of the land itself, and it will be for consideration from how many and what years the average should be taken, and whether there are data for distinguishing whole sale from retail prices; also whether the prices of each talook should be determined separately or the average of the whole district taken.

59. In para. 45 Mr. Newill seems to think that in classifying the "dry" lands their relative productive powers should be estimated in terms of *money* representing 25 per cent. of the gross produce, and in "wet" lands* 30 per cent., and that this will answer the purpose of first attempting to estimate the 'net profits.'† But in para. I he proposes apparently not to include the value of the straw‡ in the gross produce. If so the 25 and 30 per cent. would do *more* than make up for the difference between net and gross profits.

**Para.* 47.

†*Para.* 10.

‡*Para.* 42 *of these Proceedings and para.* 50 *of Mr. Newill's letter.*

60. The Board anticipate more rates than Mr. Newill§ as regards irrigated land certainly, for some must be rated highly as yielding certainly 2 crops a year, and may come up to 20 Rupees an acre. The Board understand that trials made by Colonel Arthur Cotton as to the produce of land watered by the Godavery annicut channels, gave a very high return of produce, and Mr. Newill will not neglect of course to ascertain if possible the outturn of specific fields or portions of land, as also the price at which land is valued in suits brought before the Civil Courts, or sales by decree of Court or Collector.

§ *Para.* 52.

61. The Board quite approve of Mr. Newill's intention|| to furnish the Curnums with copies of the Field Registers and statements of assessments. They should also be supplied with copies of the *Survey* Register.

||*Para.* 66.

62. The Government have already been addressed on the subject of Establishment required for the Survey.

63. The Board observe, that the present opportunity is one that should not be lost, for obtaining trustworthy and detailed information as to the statistic, manufactures, agriculture, and trade of the country. There will be a considerable European agency employed and the officers both of the Survey and Assessment Departments, who will of course be the greater part of the year residing amongst the people, and employed in a duty which will give them the means of becoming personally cognizant of every detail should compile a descriptive account of each Dis-

trict, embracing not only its physical features, and varieties of soils, but its capabilities in a commercial and revenue point of view as well as its requirements with regard to irrigation, and means of communication. The scrutiny that will have to be exercised in framing a field assessment, will enable the assessment officer to attach to each village Record, a statement as to the number of resident and non-resident cultivators, the number of houses, puttahs, ploughs, and cattle ; the condition of the various sources of irrigation, cattle ponds : the feasablity of bringing jungle or waste land into cultivation ; the number and occupation of residents not concerned in agriculture, &c. The general *District* report should afford full geographical and if possible geological information including suggestions as to improvements in the boundaries of talooks so as to ensure compactness ; and the forwarding for analysis specimens of the various soils on which classification has been founded. The exact spot whence those were selected should be noted. The District report should also describe the chief agricultural products, the seasons of sowing and reaping, the mode of cultivation, and irrigation, produce in a given extent, prices and markets. The state and prospects of cultivation of sugar, indigo, cotton, oil seeds, ground nut, Tabacco or any products likely to suit a foreign market. The state of the jungles and forests, pastures, lunkahs, &c.,* The principal manufactures and trade of the District should be noticed including the production of oils, jaggery,† salt, saltpetre, &c., with the places in which they chiefly find a market. The exports and imports should also be noticed, also any peculiarities in tenures of land or social customs. In sketching out the above subjects, the Board cannot of course expect that *all* the information can be supplied, but on the other hand there may be subjects not included above which will occur to the Director of Settlement, as useful additions to his District report. On many points he will receive valuable (and no doubt willing) aid from the Collector, and District Engineer.

* *Alluvial islands in the beds of rivers.*

† *Coarse Sugar.*

64. The views of the Board as to the amount of control and interference to be exercised over Mr. Newill's operatives cannot be better expressed than in the words of the best authority on the subject of Re-

venue Survey and Assessment, namely Capt. Wingate of Bombay*; "There can be no question that in an experiment of this kind it will not be possible to determine at the very outset the best modes of procedure, several failures and fresh trials must be anticipated before success can be looked for; and to hamper the judgment and proceedings of the settling officer by requiring him to obtain the formal sanction of Government to every step he may deem it desirable to take at this initiatory stage would inevitably throw doubt and discredit upon the experiment, if it did not deprive it of all chance of success, until the Superintendent can satisfy himself, by actual trial and successful execution, of the feasibility of any particular modes of survey and settlement, it would be obviously premature to require him to lay these before Government, or to bind himself to adhere to them. I feel satisfied that the best chance of success would be afforded by confining whatever instructions may be deemed requisite for his guidance at the outset to general principles, and to accord to him every possible latitude as regard "details of execution."

**Reports on the Survey and Assessment of Rutnagherry 30th June 1851, para. 76.*

65. The Government have in their proceedings of 11th September 1857, No. 921, R. D., para. 7, requested the Board to give attention to the communication received by Government from Mr. Ricketts on the subject of the investigation into enams. The Board agree with Mr. Ricketts that the Director of Revenue Assessment and Survey, would be the proper officer to investigate these cases, *if it is in his power*. The Board would propose that after Mr. Newill has settled himself to his new and arduous duties, he may be called upon to state if he can undertake the enam investigation if assisted by an efficient establishment, and what establishment he will require. The detailed field maps that the survey will produce, and the field by field enquiries made by Mr. Newill's classifiers, ought to bring to light every enam, and render their arrangement under general heads previous to actual investigation a matter of little difficulty. This the Board think might be done at once, as soon as the survey and assessment is put on a proper footing by sanction of the required establishment. There is however still the difficulty that it will be a long time ere the survey operations reach the districts where the enam investigation is most required; but the Board believe that no thorough investigation can be secured without a survey

and when a revision and probable reduction of assessment accompanies it, the resumptions will be submitted to with less dissatisfaction.

66. The Board anticipate no difficulty with regard to the relative official positions of the Director of Settlement and Superintendent of Survey. The former should be considered to have a general authority over both operations, but more especially the assessment, for the survey must be conducted as to its detail under the immediate responsibility of the Superintendent. The duties of the two officers therefore with respect to this branch may be shortly defined, the Director is to explain to the Superintendent what *he wants done,* and the Superintendent will inform him if it can be done. If it can, the general requirement will be sufficient. If it can only be done by great increase of labor, time or expense, or if there be any professional difficulty it will be the duty of the Superintendent to explain this fully to the Director, and in event of the two officers not being able to come to the same conclusion, the matter can be referred to the Board of Revenue. If the requirement *cannot* be executed both officers should consult together, and consider how near an approximation can be made, or what may be substituted. All correspondence should pass through the Director, to the Board. The forms in which, and channels through which, pay and allowances are to be drawn will no doubt be furnished by the Accountant General and Civil Auditor. When drawing materials, flags and signals, &c., are purchased the Director should send up a contingent bill and the charges if passed by the Board of Revenue should be admitted by the Civil Auditor. The limit under which contingent bills may be passed, can only be determined after a few months experience. Stationery will be supplied by indent in the usual way. Special application should be made for sanction when expensive instruments are required, and it should be stated if it is proposed to procure them in this country or from England.

67. With regard to the general supervision of the Board of Revenue, as directed in para. 4 of Extract Minutes Consultation of 11th September 1857, they conclude that as the officer selected to conduct the assessment operations has been placed on the footing of a Member of the Board that he has both ability and authority to carry out the details of the duty, without being dependent on the Board for constant instruction and guidance; they consider therefore that except where a special or important subject requires a reference, it will be sufficient if

he submits a report of the progress both of survey and assessment every 6 months, which report will be laid before Government by the Board with their own observations. Should references be made to the Board by the Director, they would wish to be informed by Government if they have authority to decide upon them.

Circular 17th September 1857.

68. With reference to para. 10 of Extract Minutes Consultation of 11th September the Board have issued the necessary instructions to the Revenue officers in the Provinces. The Director of Assessment will no doubt see the propriety of giving due weight to the opinions and information afforded by the local authorities of the district, though free to act on his own judgment.

(A true Extract.)

(Signed) J. D. SIM,
Acting Secretary.

Extract Minutes of Consultation, dated 15*th February* 1858, *No.* 191.

Para. 1. In their Proceedings recorded above, the Board of Revenue reply to the call made in Extract Minutes Consultation 11th September 1857, No. 921, para. 4, and submit letters from the Director of Revenue Settlement respecting his views on the course which should be followed by the Survey and Settlement Departments. The Board's opinion on the Survey operations are found in paras. 1-34 of their Proceedings, and in paras. 35-63 they treat of the assessment, classification of soils, &c., while the concluding sections of the paper contain general observations on the control to be exercised over Mr. Newill's operations, the proposed Enam Commission, &c.

Board, paras. 3-4.

2. The plan of operations proposed by Captain Priestley, the Board state, to be the same, as regards detail, as that under which he has already conducted his preliminary survey in South Arcot and Trichinopoly, but in future the Grand Trigonometrical survey stations will be first ascertained, if possible, and used as a foundation for the Revenue survey, by being taken as a commencement of the main circuits which will take in about 150 square miles. The Board in para. 6, quote from a Report on the survey operations in Mymensing, to which the Grand Trigonometrical survey has not extended, in which

it is stated that masonry pillars were erected in convenient situations with a view to future connection with the Trigonometrical triangulation and they imply that, should the Grand Trigonometrical survey stations in this Presidency be not in existence, or not ascertainable without very great delay, a similar procedure might be adopted, rather than that the survey should be delayed until the stations be fixed, as Captain Priestley proposes, by an officer deputed for the purpose by the Surveyor General of India. This is perhaps reversing the proper order of things, and might lead to embrassment, if, when the revenue survey shall have been completed, the general triangulation should not be found to agree with it. The Government however believe that, if difference be found, it will not effect the villages, and still less the fields, and could be felt only in mapping large divisions of the country. The Government therefore concur with the Board in thinking that, however important the Grand Trigonometrical survey may be as a help, it would be unadvisable to stay proceedings until the stations of that survey can be ascertained, and they sanction the expedient which has been resorted to in Mymensing. At the same time, they fully agree with the Board that the duty of finding these stations, should they be unascertainable, cannot be trusted to a mere surveyor, and they will at once apply to the Government of India to depute an officer for this special purpose. Some remarks opposite to the question of a Revenue survey being followed, instead of preceded, by the triangulation, are made at page 508 of the second edition of Smyth and Thuillier's Manual.

3. The Governor in Council must observe that the Board have not correctly quoted the Government order of 14th August 1857, No. 815, when they say that the Government "apprehend no difficulty in discovering the stations. If the Board will refer to the order in question, they will find that the Government, in using the expression referred to, quoted the sentiments of Major Thuillier as expressed in para. 21 of his letter to the Government of India No. 13 of 6th May 1857, but advanced no opinion of their own on the subject.

4. In para. 7, the Board notice that pending the completion of the traverse of the large, or main circuits, the assessment will be at a stand still. Some delay may it is true take place, but there is already work in hand for the settlement party in South Arcot, during the prosecution of which the survey establishment will commence in Rajahmundry, and will probably have time to get well in advance. It may

further be observed that, if the circuits of 150 miles are found to be so large as to cause delay in completing the traverse incommensurate with the advantages secured by a large circuit in a survey point of view, they may be reduced to the extent of from 50 to 100 miles, as prescribed for the area of main circuits in Captain Thuillier's Manual.*

* Page 210.

5. In paras. 9 and 10, the Board detail the process to be followed on the main circuits being completed; and they offer some valuable suggestions as to the form, &c., of the Survey records, which should all be carried out. The Government have, on a former occasion, signified their approval of the plan recommended for checking, in some measure, the veracity of the classifiers' returns by the addition of a column to the Surveyor's register, to show roughly, the kind of soil and the last crop grown, scarcely any additional trouble would be entailed upon the surveyor, and the advantages of the plan may be great.

6. The Board treat of the Survey maps in paras 11-17 of their proceedings, and of the scale to which they should be drawn. All useless and confusing "finish" should certainly be avoided, but the Government would wish that every particular of topographical or revenue importance should be exhibited, and no expense will be vain to secure perfection in these two respects; while all mere embellishment should be omitted. The materials used should be of the best and most durable description.

7. With reference to the suggestion that skeleton Maps should be struck off, the Government direct that in all villages where there is Enam land, a number of copies of the village Map may be struck off, with the village boundaries, &c., shewn generally, and the Enam land only shewn in detail, in order that the Collector may be enabled to record each successive resumption of rent free tenures, whether brought about by the decisions of the Enam commission, or by the natural course of events. The Government lands might be colored or shaded, and the Enam lands left white, so that gradual resumption might be shewn by giving to them the same color or shading which distinguished the Government lands. It will always be convenient for the Collector to have by him these skeleton maps, as the means of recording any alternations of the tenures, &c., in the lands of the village involving fiscal change.

8. The scale to which the maps are to be drawn must be next noticed. Captain Priestley proposes three distinct scales. I. The village map of 16 inches to a mile; II. The talook map of 2 inches to a mile; III. The district map of ½ an inch to a mile, or double the size of the Trigonometrical survey map.

9. The use of the first scale has been practically demonstrated by Captain Priestley; and Major Thuillier approves of it. It is much larger, the Board say, than the survey maps in the N. W. Provinces, but the necessity of plotting each field to scale under a Ryotwar system makes a large scale necessary; and it is shewn to be considerably smaller than the scale adopted in the ordnance* survey of England. Mr. Newill proposes that, where the fields of a village are large, the scale should be comparatively small. The Board are of opinion that the scale should be invariably of such a size as will admit of the number of the smallest field being freely and clearly written within its boundary, and the Government think that, upon the whole, it will be better to have all the village maps on the same scale; they perceive no disadvantage in the scale being slightly larger than is absolutely necessary in some villages; while, on the other hand, uniformity of scale is a great desideratum.

Board, para. 13.

* 25-344 *inches to a mile.*

10. The Government accordingly approve of the three scales suggested; they trust however that it will be found practicable to print each Collectorate on a separate sheet by itself, so as to avoid the inconvenience now felt by one district being divided into two or more sheets of the Grand Trigonometrical Survey map. The proposal to exhibit levels from an assumed datum on the talook maps is fully approved, as a measure that will be of great use in planning Irrigation projects.

Board, para. 15.

11. In the 18th and following paras. the Board treat of the important subject of demarcation of boundaries. The Government have already gone at length into the subject, and directed that provision be made in the estimates for an establishment of the

Ext. Mins. Cons. 11*th Dec.* 1857, *No.* 1288.
Page 516 *of the Manual.*

strength which was found necessary in Upper India, excepting therefore the question of the boundaries of fields, which will be noticed in detail, it is not necessary to enter into the arguments mooted by the Board. In para. 24 the question of the assistance to be afforded to the demarcation party by the Revenue authorites of the District is noticed. Adverting to the fact admitted by the Board, that the Collector's Establishment is already greatly overworked, the Government would deprecate any thing more being demanded from it than general information on points not readily ascertainable by those without local knowledge.

Para. 20.

12. In para. 26, the Board remark that Captain Priestley dwells upon the subject of " what is to be considered a field," as being still undecided. The question is one of considerable difficulty. The Board of Revenue are of opinion that the matter can be satisfactorily settled by the Director of Settlement and the Superintendent of Survey on the spot, as questions may arise, but they suggest that, where the old Pymoish fields can be discovered, they should be adhered to ; but where this is impracticable, that every field that is specified in the Ryot's Puttah should be separately mapped.

13. With reference to survey fields, considered in a purely survey point of view, the Government are of opinion that, if the great expense did not render such an undertaking impracticable, every field should be measured, but as that cannot be done, it only remains to consider where the survey shall stop. This is a point which the Government gather from the Board's Proceedings that they have not yet definitively decided upon, and they appear to be desirous of waiting until the Superintendent of Settlement shall have been able to submit his views, based on actual experience. The Government are willing to leave the matter in the Board's hands at present, and will look forward with interest to the receipt of information which may enable them to pass their final orders, when the means of arriving at a right conclusion are laid before them by the Board.

Board, para. 27.

14. The procedure detailed in para. 28 is in accordance with the Bengal practice ; but it must be left to experience to shew whether the Curnums are capable of making the Thakbust map. If they are unable, the duty will of course be executed by the demarcation Establishment.

15. In para. 29, the only passage calling for a remark from Government is the suggestion of Captain Priestley that the boundaries of each field be pegged out before the village is reported ready for the Surveyor. If it be proposed that the entire boundary of fields shall be marked by pegs, the plan seems to the Government to be impracticable. The Demarcation party will not always be just ahead of the survey, and if it precede it some months, it will be almost hopeless to expect that all the pegs round all the fields should remain untouched. The boundaries of Nunjah fields are generally easily discernible, those of Poonjah fields, even when not marked by hedges as in Coimbatore and Salem, are generally rectangular and in such cases it would be sufficient to mark the angles of the fields, but the question although important to the convenience and rapid progress of the surveyor, is perhaps one that may be best left to arrangement when it practically arises, and on which the orders of Government cannot be satisfactorily given. It will not be too much to expect of the village officers that they shall keep the circuit boundary marks, and those of the principal divisions of their villages, intact; their personal responsibility should be strictly enforced, and if this be done in a few cases, the Government are convinced that the impediments to progress on this score will almost entirely cease.

16. In paras. 30 and 31 of their Proceedings, the Board discuss the question of who is to bear the expense of boundary marks. They remark that Act XX. of 1855 compels the ryots to mark the boundaries of cultivated fields, and leaves the expense of demarcating the limits of waste lands to the Government. But the theodolite pillars, they go on to say, will require a considerable outlay; and they propose that the introduction of the new assessment shall be deferred for a year to meet these and other charges. Mr. Newill proposes that the expense of the boundary marks shall be recovered from the ryots in the villages where the survey causes a reduction in the beriz, by setting off the expense against the first year's reduction, and where no diminution of the present beriz takes place on the introduction of the survey assessment, that the recovery should be enforced under the Act. The Government consider that the Board's recommendation is practical, and meets all the difficulties of the case, and they request that it may be carried out; boundary marks, once erected, will be made over to the charge of the village officers, and the expense of repairing any

damage they may thenceforth receive will be met under the provision of the Act.

17. The Board remark in para. 31 that there is no doubt that the beriz of every District will, under the new assessment, be reduced. The Government must observe that the whole plan of the survey has certainly not been advocated and undertaken on such an expectation as this. It is true that the rate of assessment on a given area of land will probably not be so high after the survey as it is now, but when then unequal bearing of the existing assessment, the great extent of unauthorized alienations, the defective measurement of the old Pymoish, and the consequent excess of ryots actual holdings above their nominal dimensions, and concealed patches of cultivation are considered, and, above all, when the water cess in newly irrigated Districts is laid on, it cannot but be supposed that the General Revenue, and if so of course the beriz of Districts, will be maintained if not increased.

18. With reference to the regret expressed by the Board that the demarcation has not been entrusted to a Special Assistant to the Collector, the Government admit that there is much force in the argument that an officer working immediately under the general instructions of the Collector would have had more authority and influence over the people, but they observe that it will still be practicable to vest the requisite authority in Mr. Newill's Assistants, by making them temporarily Special Assistants, or additional Sub-Collectors, according to their standing, in the Districts in which they may be immediately employed. As regards the possibility, hinted at by the Board, that the constituted Revenue authorities may run counter to Mr. Newill and his subordinates, and that thus a clash of authority may be produced, the Government, without anticipating the evil suggested, will only remark that they are fully resolved to insist upon the most cordial co-operation between the two departments, and to visit with their displeasure any officer of either department who may attempt to throw obstacles in the way of the other.

Board, Para. 32.

19. The last point to be noticed under the head of "survey" is the necessity of allowing Captain Priestley to obtain whatever instruments he may require, in addition to those already intended for either in India or England,

Para 34.

and to charge the cost of the same in a contingent bill; special sanction being required for the purchase of any instrument costing above 300 Rupees. The Government approve of this suggestion.

20. The Board next proceed to consider the question of assessment. They commence by remarking that Mr. Newill's letter dated 28th October does not exactly propose a "plan of operations" as required by Extract Minutes Consultation 11th September 1857, No. 921, but that it is almost impossible to do more than generalize, previous to the acquisition of some initiatory experience in the field. The first point touched upon by Mr. Newill, is the opinion of Government that land should be classed in terms of grain according to its productive power. He shews that there are great practical difficulties in classing unirrigated land in terms of grain, owing to there seldom being any one grain which can be called staple in any one district. The application too, of a grain rent to plantain or sugarcane gardens would be but guess work, and the Board state that it was on account of the anomaly of classing orchards, pastures, &c., as yielding so many bushels of wheat, that the tithe Commissioners in England obtained an Act, enabling them to fix the rent charge on the fields in terms of money.

21. The Government have not been able to find the Act to which the Board refer (1 Vict. Cap. 6-9. Sec. 5) in their office, but they remark that their former order, referred to by the Board, did not require that the assessment of all the dry land in the Presidency, or even in each District, should be recorded in terms of one kind of grain, it was said that "the classifier should note, as nearly as he can, "the productive power of the land stated in quantities of some one of "the ordinary grain crops, paddy for irrigated land, and cumboo, cho-"lum or some other grain for unirrigated." Each district has its staple, and each description of land is, generally speaking, adopted to a particular product, and there will not, apparently be any difficulty in ascertaining and recording the assessment of any land in the terms of that staple, or product. The Governor in Council is unable to see the force of Mr. Newill's argument in para. 11 of his letter, quoted in para. 38 of the Board's Proceedings, when he says that, "though every "effort be made to determine by direct process a grain assessment for "each field, the conclusion arrived at will result in reality from neces-"sarily following the inverse process, of *first* fixing a money value,

14th Aug. 1855 para 15.

"and then converting into grain." Mr. Newill seems to have overlooked the fact, that although when once a classification has been made, and money rates have been fixed for each class of land, the money assessment may be determined by placing the land in any particular class, still the original apportionment of money rates to each class can have been made only by first ascertaining the lands productive power. The land does not produce money but grain, and a money assessment can originally be fixed by no other means than by ascertaining for how much money the grain produced on the land will sell. So far therefore from admitting Mr. Newill's view, that a grain assessment can be fixed only by the inverse process of first determining the money assessment, and then converting it into grain, the Government are of opinion that, to ascertain the grain produce of land, is an absolutely necessary preliminary to the determination of the money assessment. As therefore the first step in the process by which the productive value of land is arrived at, is to estimate the quantity of some description of aggricultural produce that it will yield, there can be no difficulty in, or objection to, recording it. Although in discussing this matter in para. 37 of their Proceedings, the Board say that "it would be simpler to enter a money value at once," the Government observe that, in subsequent remarks, they appear to admit the principle originally laid down by Government. In the 39th paragraph of their Proceedings the Board observe, "still as a preliminary step, it will be necessary to classify the lands according to their amount of produce and "value thereof. For the irrigated lands it may be possible to frame "a grain classification, although the ultimate assessment determined "upon will probably be in money. Also as regards unirrigated land, "in classifying the fields there may be many the produce and value "of produce of which, may be entered in the original records to shew "the data on which the original classification was made, although the "ultimate assessment may be in money." Further on in the same paragraph the Board admit that a grain classification must be the general basis on which the value of the land and the Government demand must be estimated, and in para. 58 occur the following words, "it will probably be better to class the lands according to their produce, and investigate the commutation prices separately, and then," that is, after the produce is determined, "apply it to each field." It is desirable that the grain denominations of the productive power of land should

not be unnecessarily numerous, paddy will probably answer for by far the greatest proportion of irrigated land, and for dry land the list of products need not exceed six.

22. With reference to Mr. Newill's observation at the end of para. 5 of his letter above quoted, (Board para. 37 end), that if a fixed water rate is to be imposed, to be applied to all lands to which water is laid on, it will be requisite to ascertain the produce of lands now irrigated in terms of a grain which has never been grown on them, the Government observe that the question of assessing even wet lands in terms of dry grain, and then fixing a water rate, was referred to by them as a suggestion worthy of consideration only, and was not laid down as a peremptory rule to be followed. In the 15th para. of the Extract Minutes Consultation of the 14th of August 1855, it was said, "so important is simplicity of classification, that it may well be considered whether it will not be practicable to abolish the distinctive classification of lands according as they are, or are not capable of irrigation from a Government source, and to classify all land simply with reference to its soil, and its productiveness without irrigation, charging a water rate when Government water is used or is permanently available." The greater part of Tanjore has no doubt been irrigated for many centuries, and the Government admit that it would not be possible now to ascertain what was the productive power of the lands of that Province before they were cultivated with Paddy, and the Government do not wish to press the point further. In the North West Provinces, the system of charging separately for the land assessment and for the water prevails, but irrigation there is recent, and on the conversion of dry land into wet it was of course easy to maintain the distinction of charge, but the case is very different in countries which have borne wet crop for centuries.

23. In para. 21 of Extract Minutes Consultation of 14th August 1855, the Government recorded their opinion that the commutation prices might properly be fixed every 7 or 10 years, on the average of the same period, and the Board notice the subject in para. 40 of their proceedings. The Government think that it would be unwise to fix any definite periods for a review of the commutation rate, the question is one of vital importance to the landowners, and should at all times engage the most careful attention of the Board of Revenue,

whose duty it will be to bring to the notice of Government any facts connected with it, which, in their opinion, are affecting the welfare of the country.

Paras. 16-20.

24. The Board next notice the subject of fixing the assessment with reference to the net and not to the gross produce of the land, the former course being advocated in the Honorable Court's despatch sanctioning the survey. The Government may here observe that there is an apparent inconsistency in the Court's despatch on this subject. In one place it is stated (p. 19,) that the mode of apportioning the assessment to the net produce was followed in the North Western Provinces; but subsequently (p. 20,) the Honorable Court say that "no attempt has been made to estimate the "net produce in the revised settlement of the North Western Provinces," and the Honorable Court admit that the principle would, in practice, be imperfectly attainable, and that determining assessment is a question of discretion and not of mathematical calculation. The Board have already recorded their views to the latter effect, in paras. 7 and 8 of their proceedings to government of 15th July 1857, and Mr. Newill's views, they now remark, seem to be in accordance with their own. The Government concur with the Board that, to ascertain the net produce of each field, is impossible, and the fact is, in reality admitted by the Honorable Court. The Government do not therefore wish that the Director of Settlement should consider himself hampered by the necessity of endeavouring to ascertain what may be the net produce of the land.

Board, para. 42.

25. The Governor in Council is of opinion, with the Board, that the value of the straw should be included in the assets upon which the assessment of the land is calculated.

26. In paragraph 43, the Board again refer to the question of a water rate which has been already discussed, and as regards their remarks on the proposal to charge for water according to the cost of its supply, the Government would refer them to the Extract from the Minutes of Consultation dated the 22d of July 1857, in paragraph 37 of which it was said, "that the cost at which water is supplied is not "the sole point to be considered in fixing the charge upon the land, "but neither on the other hand is the greater or less value of the water

" to each individual ryot to be taken into account; on the conversion " of dry land into wet by the use of water supplied from a Government " work, an extra charge will be made, and what that charge shall be, " must be determined on a combined consideration of the cost of sup- " ply to Government, and the general increased value given to the " land by its conversion from dry to wet, by its safety from inunda- " tion, the freedom of its drainage, and the difference of cost of convey- " ance by the substitution of water for land carriage. In Rajahmundry, " although this increase of value is certainly but ill represented at two " Rupees an acre for a single crop, the Government are satisfied that " such an extra assessment will fulfil all the conditions that need to be " provided for, will leave the ryot a handsome return on his agricultural " stock and labor, and will, at the same time, enable the Government " to draw from the province such a contribution towards the general " expense of the State, as its fertility and its ample means of irrigation " and communication, shew that it can well afford."

27. The Board in para. 44 proceed to notice Mr. Newill's opinion that a consolidated assessment is best for irrigated land where there is a reasonable certainty of two crops being raised every year. They agree with him, and remark that to determine what lands come under the category of double crop is the duty of the assessment office, who will also have to pay attention to those cases in which the second crop is more valuable than the first, as well as to those in which it is less valuable, and also to determine at what rate water shall be charged when used for a second crop on lands assessed as single crop. The Government observe that it matters little which crop of the two is the more valuable, the fact remains that one is more valuable than the other, requires more water to mature it, and occupies the land for a longer time; the crop that consumes the extra quantity of water is the more valuable, and is assessed at full, and the other at half teerwa. It can be of no consequence which crop comes first and which follows. In Tanjore the second crop is the more valuable; in Rajahmundry the first, and the full rate will of course be charged accordingly. As to a consolidated tax, the ryots are believed to be generally opposed to it, and the Government are not of opinion that a large amount of revenue should be sacrificed to its introduction. The Government are of opinion that no ryot would agree to pay a consolidated cess unless his land was so good, and his supply of water so constant, as to render his raising two

crops every year a matter of absolute certainty, and as in this case any detailed examination by the village officers to ascertain whether a second crop were raised or not would be needless, it seems quite unnecessary to sacrifice any part of the revenue with the view of freeing the ryot from an inconvenience he would never be subjected to. But supposing that the proposed arrangements were made, and that those ryots whose second crop was certain had agreed to a consolidated assessment, it would still be necessary that the lands of those who had not agreed to it should be examined, and the Government are not of opinion that the exemption of a small proportion of the village lands from a process to which all the rest must still be liable, is worth purchasing at a heavy sacrifice of revenue.

28. The observations in paras. 45 and 46 call for no remark from Government. In para. 47 the Board express an opinion that the fees of those village servants whose services are useful to the ryots alone, as barbers, potmakers, &c., should not be taken into account in forming the assessment, and that those officials who are in fact servants of Government, should be paid by a per centage on the village collections. The Government concur with these recommendations; and are fully alive to the policy of substituting ready money allowances for the present landed emolument of the village servants, and desire to see the change eventually introduced. In some districts, as in South Arcot, the heads of villages are already remunerated according to the system advocated by the Board. The question however has no direct bearing on the assessment. The fields composing all village officers' enams should be classified and assessed, in order to facilitate their being brought under the head of Government lands when the new system of ready money payments is introduced.

Board, para. 48.

29. The road fund should be a distinct cess; it will be levied as proposed for North Arcot by Mr. Bourdillon, in the shape of an additional cess of 2 per cent. on each ryot's puttah.

Board, para. 49.

Para. 40.

30. In the two subsequent paragraphs the Board review Mr. Newill's opinions as to the classification of the soil. The Director of Revenue Settlement requests instructions on the subject of the assessment of garden lands, which, though, in their natural and original state only on a par with ordinary poonjah,

have by high farming, become so valuable, that their owners are enabled to pay a very high assessment on them. Mr. Newill thinks that, if in accordance with the principles which have been previously laid down, of not taxing improvements arising from the ryot's own capital, these valuable lands be only classed as ordinary poonjah, a great falling off of revenue will be the consequence. The Board observe that, "all land should be "assessed with reference to its productive capabilities under ordinary til-"lage, and not with reference to its present state where it has been im-"proved by expenditure of capital. This is the correct view to act up-"on as far as its circumstances admit, and it is not inconsistent with the "proposition that Government should revise the whole assessment 50 "years hence, and even increase it where land has been permanently "improved since the last assessment was made."

31. This does not appear to be so consistent as the Board would assume, if it will be fair and right to increase the assessment fifty years hence on such lands as have been permanently improved, it is not clear why it should be termed incorrect to pursue the same system now. In para. 10 of the Extract Minutes Consultation of the 23rd April 1855, No. 460, in review of the Board's Proceedings on the proposed reductions in North Arcot, it was said that a rate higher than the highest ordinary Poonjah rate might well be assessed on the garden lands of that District, and this has been practically carried out, the first class of ordinary poonjah land pays 4 Rupees a cawney, while the best garden land, although classed as poonjah, is assessed at 6 Rupees, or 50 per cent. higher. Garden land should certainly be classed as Poonjah, but the Government are not of opinion that, the ordinary poonjah rates having been fixed, all garden assessments should be reduced to even the highest of those rates. Garden land should be treated on its merits, the productive power of its soil, *independent of irrigation from wells,* should be ascertained, and it should be assessed accordinly; in this view it will probably itself form the highest poonjah rate of each village, and the best ordinary poonjah will form the second rate.

Board, para. 51

32. The proposal that all wells should be considered as part and parcel of the land in which they are situated, unless it be proved that they were sunk at the Government expense, is approved.

33. In para. 52, the Board review Mr. Newill's plan of initiatory operations which refer entirely to the mode of classification.

Board, paras. 52, 59,
Mr. Newill, paras. 42, 56.
**Para.* 19.

34. With reference to the per centage of the gross produce to be fixed as the Government demand, there seems to be some confusion. In the Extract Minutes of Consultation of 14th August 1855*, 30 per cent. was fixed upon as the maximum of the Government demand for the ordinary expences of the State, extra cases for roads, education, &c., being further chargeable to the ryot, and it was thought that the average share would be about 25 per cent. Mr. Newill apparently speaks of 25 per cent. for the unirrigated and 30 for the irrigated land. The Board will be good enough to point this out to Mr. Newill, and to request him to regulate his procedure according to the order of Government quoted above. Adverting to the proposal to regulate the proportional additions to be made to the normal assessment of the fields on account of increasing distance of the place of production from the village site, according to a given scale of distances, the Government think first, that it will be better to lay down no such precise or formal rule; it will be more advisable to leave this to the assessing officer's discretion, the reasons for making such additions as those under notice being always recorded; and secondly, it appears to Government that it is not always proximity to the village site that will render lands more valuable. A road or canal may run through the lands of a village lying furthest from the village site, and such lands will thus very likely be practically nearer the place of the destination of their produce and be capable of being more economically manured, than those situated immediately adjacent to the habitations of their owners.

35. In para. 54, the Board shew that the results of the system they have reviewed will be, according to Mr. Newill, eleven money rates for unirrigated, and ten for irrigated land, ranging from Rupees 10 to Rupees ¼ per acre; they however (para. 60) anticipate many more, at any rate for wet land.

36. The scheme sketched out by Mr. Newill has the Board's approval, and the Government concur generally with them; on one or two points exception has been taken above. The instructions which the Board propose to issue with reference to forming a separate scale for the villages, and for the whole district, are likewise approved, as also the suggestions in the latter part of para. 60 and in paras. 61 and 63.

Para. 56.
Para. 57.

37. With reference however to the question of fixing the commutation rate, Government will await a clear statement of the views of the Director of Settlement and Board of Revenue.

38. On the question of the assessment, the Government have only further to remark that it should be distinctly notified that it will be revised after fifty years, if then deemed expedient.

39. The Government fully agree with the sentiments of Captain Wingate, quoted by the Board as in accordance with their own, as to the necessity of confining the instructions given to the heads of a Department like that now in course of organization under Mr. Newill, to general principles, without attempting to lay down any formal rules as to "details" of execution. The Board will find that the spirit of the foregoing instructions is perfectly in accordance with their present recommendation.

Board, para. 64.

40. The Government approve of the proposal contained in para. 65 of the Board's proceedings that Mr. Newill be called upon hereafter to state whether he could undertake the Enam investigation, if assisted by a competent Establishment, and what Establishment he will require. But no final orders can be passed on the subject until the receipt of reply of the Honorable Court of Directors authorizing the commission which it is proposed to issue for this purpose. It is certain that, without the Survey, no satisfactory enquiry could be made. The Government hardly anticipate however that Mr. Newill could undertake, in addition to his own proper labor, additional duties of so onerous a nature as will be those of the Enam Commissioner.

41. Para. 66 contains a few suggestions on the method of transacting business in the Department which call for no remark from Government; the proposal that the Director of Settlement shall be required to submit a Report of his operations every six months to the Board, without being dependent on them for constant instruction and guidance, is approved.

Para. 67.

(Signed) H. FORBES,

Acting Secretary to Government.

Letter from H. FORBES, Esq., Acting Secretary to the Government of Fort St. George; to C. BEADON, Esq., Secretary to the Government of India; dated 15th February 1858, No. 192.

SIR,

Para. 1. In their Proceedings of this day's date, the Government have had under their consideration a Report from the Board of Revenue on the course of operations to be followed in the survey and reassessment of the lands of the several Districts of this Presidency, under the authority granted for that purpose in the letter from the Honorable Court of Directors dated 17th December 1856, No. 17.

2. The several points discussed in this Report have been finally disposed of, and instructions issued for the guidance of the Director of Revenue Settlement; and the Government only await sanction for the working Establishments applied for in my letter of the 25th Ultimo, No. 97, to order the immediate commencement of the work.

3. The plan proposed for the survey operations will be the same, as regards detail, as that on which the preliminary surveys in South Arcot and Trichinopoly have been conducted, but in future, the Great Trigonometrical survey stations will be first ascertained and used as a foundation for the Revenue survey. It is a matter of the first importance that these survey stations should be properly ascertained and fixed, and as this duty cannot be satisfactorily entrusted to any other than a qualified officer of the Trigonometrical survey, I am directed to convey the request of the Right Honorable the Governor in Council, that the Government of India will be pleased to aid him in the object he has in view, and direct that an officer of the Surveyor General's Department be deputed for this special purpose at the earliest practicable period.

Extract from the Minutes of Consultation under date the 19th March 1858, No. 360.

Mr. Robert Master and Mr. George Banbury having been, under date the 16th Instant, appointed Deputy Directors of Revenue Settlement, the Right Honorable the Governor in Council resolves to grant to those gentlemen the powers of a Sub-Collector and Joint Magistrate.

2. It is however to be understood that these powers are to be ex-

ercised only in as far as they may be necessary for the execution of the duty of a settlement officer, in compelling the attendance of the Curnums, settling boundaries, &c., and that the ordinary Revenue and Police administration is not to be interferred with by the officers of the Assessment Department.

(A true Extract.)

(Signed) H. FORBES,
Acting Secretary to Government.

Letter from H. NEWILL, Esq., Director of Revenue Settlement; to H. FORBES, Esq., Acting Secretary to Government Revenue Department; dated Madras, 19th March 1858, No. 89.

SIR,

I have the honor to submit, copy* of a letter from the Civil Auditor of 17th Instant, informing me in reply to a question put to him on the point, that the service of individuals in the survey and assessment departments recently sanctioned will not be allowed to reckon towards superannuation pensions.

* *Enclosure No.* 1.

2. As the matter is of vital importance in the organization of the establishments, I beg to bring it prominently forward for the earliest orders of Government, with the respectful representation that unless the advantages of the pension rules are extended to these departments, it will be impossible to constitute them with any degree of efficiency, and that I believe the denial of the indulgence will be fatal to the general success of the important measures confided to me.

3. The salaries of the office servants have been regulated, as much as possible, with reference to those of corresponding situations in other Deparments of the State, and with the inconvenience to which the office Establishments will be subjected in frequently moving about, sometimes hundreds of miles, it is not to be expected that respectable and efficient persons will attach themselves to a Department to which the Pension Rules do not apply. I cannot expect persons to be tempted by the offer of promotion from their Departments to higher salaries in mine, as the advantages of prospective pension will certainly be valued more than an increrse of salary for the time. Again, if I succeed in entertaining some servants, they will be tempted to leave the Department as soon as they can find even a less advantageous salary elsewhere. I need scarce-

ly to add that the prospect of a pension is no little incentive to integrity, in as much as the fear of the loss of it may deter from irregularities in a manner that the risk of loss of situation will not.

4. In short it is only in the expectation of this representation meeting with favorable consideration that I am able to proceed at all in constituting the establishments requisite to commence operations; and my efforts must be completely paralysed, if the inducement of retiring pensions is withheld. As an instance, my Uncovenanted Assistant to be a man of the requisite revenue experience will have to be drawn from the higher grades of the Revenue Departments in the Provinces, such as the Naib Sheristadars and sub-division Sheristadars, and I feel certain no revenue servant of that grade will give up his prospects in his present Department, to which the privilege of pension is attached to join my Departmett without similar prospective advantages. As it is, the necessity of moving away from head quarters to visit other Districts deters many from seeking employment under me, and the further disadvantage as regards Pension, would make the difficulties insuperable.

5. Lest it should be supposed that by compliance with the present application, a very large number of servants in the Survey and Settlement Departments will come under the Superannuation Pension Rules, I may state that of the Survey Aumeens and Goomastahs amounting to no less than 80 in number for each Deputy Superintendent's party, 70 will be thus excluded from claim to pension as their pay does not exceed* Rupees 10, and that as the classifiers and Demarcation Goomastahs will receive only a moiety of the sanctioned salary as fixed payment, and the remainder at a rate upon the work done, the majority of these amounting altogether to 85 for each party, will also be excluded from the Pension Rules by the smallness of a fixed salary.

* *Vide Section* 1, *Superannuation Pension Rules.*

6. I would submit for the consideration of Government whether a more favorable construction may not as regards the establishments in question be put upon the Rule published at page 919 of the Gazette of 1837 confirmed by a Despatch of the Honorable the Court of Directors dated 20th February 1850, as alluded to by the Civil Auditor,

as the establishments now sanctioned are virtually of a permanent character, and the circumstance of the work to be performed by them being expected to extend over no less a period than 15 years, seems to preclude them from the designation of "extra or temporary" as contained in the above Rule, while on the other hand the expression of "fixed establishments" in the Despatch alluded to, seems to take in those under reference as being entitled to pensions.

7. Not only have the Public* Works and Education† Departments been admitted to the pension rules, but the establishments which are entertained for the management of Estates under the Court‡ of Wards and of those also under attachment§ which are certainly of a more transient nature than the Survey and Settlement Establishments, are also admitted to the same indulgence, and I trust the Government will have no hesitation, to declare the Survey and Settlement Departments to be on the same favorable footing in respect of pensions.

* *Honorable Court's Despatch 28th February* 1854, *No.* 21.
Government of India 19*th May* 1856, *No.* 1934.
Government of Madras 12*th June* 1855, *No.* 153.

† *Court's Despatch to Government of India* 20*th July, No.* 23.
Madras Government 30*th Sept.* 1853, *No.* 2664.

‡ *Madras Government* 28*th Aug.* 1856, *No.* 202.

§ *Civil Auditor to Madras Govt.* 6*th Jany.* 1857, *No.* 2302.
Madras Government 27*th January* 1857, *No.* 17.

8. The Civil Auditor at the close of his letter, states that he believes the matter as affects the Assessment Department, has already been decided in Bengal and the North West Provinces, but does not afford any clue as to the nature of the decision, I would however entreat that I may be spared the suspense and embarrassment which will be occasioned by the delay of a reference to the Government of India on this point, and at the same time take the liberty of pointing out that the circumstances do not seem to be altogether similar, as here the establishments are to be organized for a comprehensive plan of operations for the whole Presidency ; while in the Northern Provinces, the Collector was often the settlement officer, and it is possible that his settlement establishment may have been entertained for his own District alone and for a

limited time, so as to give it a less permanent character than that of the settlement department in this Presidency.

Letter from F. LUSHINGTON, Esq., Civil Auditor; to H. NEWILL, Esq., Director of Revenue Settlement, dated Fort St. George 17th March 1858, No. 616.

SIR,

In reply to your letter of yesterday's date, I have the honor to inform you, that under the rules at present in force the service that may be earned by an Uncovenanted servant in the Survey or Assessment Department will not be eligible for pension or gratuity. The prohibitary rule you will find at Page 919 of the Gazette of 1837, and confirmed and enforced by the Honorable the Court of Directors in para. 6 of their Financial Despatch to the local Government of 20th February, No. 6 of 1850, recorded in Extract Minutes of Consultation of 8th April 1850, No. 138, Financial Department. I would however suggest your referring the question to Government, in the Civil Pension Department, as I believe the matter, as affects the Assessment Department, has been already decided in Bengal and the North West Provinces.

(A true Copy.)

(Signed) H. NEWILL,

Director of Revenue Settlement.

Extract Minutes of Consultation, dated 24th March 1858, *No.* 391.

Before passing any orders on the letter above recorded, the Government resolve to request the Civil Auditor to afford all the information in his power about the Settlement Establishments in the North Western Provinces and in Bengal, referred to in his letter to the Director of Revenue Settlement, dated 17th March 1858, No. 616.

(Signed) H. FORBES,

Acting Secretary to Government.

Extract from the Minutes of Consultation, dated 10*th April* 1858, *No.* 462.

Read the following Extract from the Proceedings of the Honorable the President of the Council of India in Council in the Financial Department under date the 5th March 1858, No. 1158.

Read the undermentioned papers regarding the proposed General Survey and Revenue Settlement of the Madras Presidency.

Extract from the Proceedings of this Government in the Home Department, No. 397, dated the 13th February 1858, and its accompaniments.

Endorsement from the Home Department No. 492, dated the 27th February 1858, on a message by Electric Telegraph received from the Government of Madras.

Resolution.—The Honorable the President in Council observes that the question of a General Survey and revision of Assessment in the districts subordinate to the Madras Presidency has engaged the attention of the Local Government during the last ten or twelve years; that towards the end of the year 1855, that Government submitted the final result of its deliberations both to the Honorable Court and the Government of India; and that after a careful consideration of the subject in the Home Department, this Government submitted the papers to the Honorable Court with a "strong and unanimous recommendation that the measures proposed by the Madras Government should be generally sanctioned, and that authority should be given to carry them into effect."

It was proposed that the survey and assessment should include all land usually cultivated and all that has been cultivated within memory, or according to the village accounts, as well as such as may seem likely to be brought under the plough under the operation of an improved revenue system; that for the purpose of obtaining greater accuracy the survey should be connected by minor triangulations with the Great Trigonometrical Survey; that the mode of settlement should be that commonly termed *Ryotwar*, or more correctly *Khetwar*, the assessment on each field being defined and fixed, so that the cultivator may know precisely the amount of the Government demand on the land occupied by him; and that the survey should be extended to tenures on which land is at present held rent free, it being observed that in every district *enams* to a large amount are held without any valid title whatever.

The area to be subjected to survey and settlement was assumed at 38 million acres, or 60 thousand square miles; the total cost of survey at Rupees 38,40,000; that of the assessment and settlement, including

the classification and valuation of the land (to be entrusted to a separate Agency) at 38,00,000 Rupees, which added to the cost of the survey would aggregate Rupees 76,40,000, and the time that the operations would occupy was estimated at 22 years.

The Honorable Court after a careful review* of the whole scheme, fully concurred in the opinion of the Madras Government that the cost about to be incurred was not more than commensurate with the importance of the objects sought to be attained by it; and in giving their sanction to the expenditure required, observed that the work should be pushed on as fast as efficient establishments can be organized, not only that the people and the Government may the sooner benefit by the projected measures executed with caution and judgment but also from motives of economy.

* *Honorable Court's Revenue Despatch No.* 17 *of* 1856, *dated* 17*th December.*

The Madras Government now report that the appointments of Director of Revenue Settlement and Superintendent of Revenue Survey have been filled up, and apply for early sanction to the expenditure proposed in the detailed Schedule of Establishments that accompanies their letter, from which it appears that the plan of operations which it is proposed to carry out by means of these establishments contemplates the completion of the whole work within a period of 14 years, instead of 22 as originally estimated, and that the total annual expenditure that will be required when the proposed establishments have been raised to their full strength, is Rupees 5,47,616 as noted in the margin, or Rupees 76,66,624 in 14 years, instead of Rupeees 76,40,000 in 22 years.

	Per annum.
	Rs.
Survey Department, - -	2,41,920
Assessment do. - - - -	2,56,844
Demarcation Establisment,	39,840
Lithographic Press, - - - -	9,012
Total...	5,47,616

The Madras Government at the same time request that discretionary authority may be given to the presiding officers in either Department to make such re-arrangements of their Staff as experience may dictate, provided that in no case the sum allotted for a party shall be

exceeded, and that the consent of the Madras Government shall be obtained.

They further request that immediately on sanction to the proposed Establishments being granted, this Government will order the despatch to Madras of as many of the instruments entered in the list annexed to their letter as may be readily procurable in Calcutta, so that the survey parties may be enabled at once to commence their work.

The Honorable the President in Council considers it very desirable that the work should be completed in as short a period as possible, and as the salaries entered in the schedule above referred to appear unobjectionable, he is pleased to sanction (subject to the orders of the Honorable Court) the proposal of the Madras Government to complete the Survey and Settlement of the Presidency in 14 instead of 22 years at an increase of charge amounting to Rupees 26,624 over and above the amount (Rupees 76,40,000) sanctioned by the Honorable Court.

His Honor in Council will not object to the presiding officers in the two Departments being allowed to re-arrange their Staff as experience may dictate, provided the sum alloted to a party is in no case exceeded, and on the understanding that no changes in the sanctioned scale shall be made without the consent of the Madras Government being *previously obtained*, and that no part of the Establishment shall be appointed until there is a certain assurance of its finding a sufficiency of work to keep it fully employed.

With respect to the instruments required by the Madras Government, His Honor in Council desires that the necessary orders for the despatch of the instruments to Madras according to the list submitted may issue without any avoidable delay from the Military Department.

ORDER.—Ordered that a copy of the above Resolution be forwarded to the Home Department, and the original papers received therefrom be returned, copies being kept for record.

Ordered that a copy of the Resolution and of the list of instruments referred to be sent to the Military Department for information and guidance.

(A true Extract.)

(Signed) C. HUGH LUSHINGTON,

Secretary to the Government of India.

No. 422.

Forwarded to the Government of Fort Saint George, with reference to Mr. Acting Secretary H. Forbes' Telegraph Message of the 22nd Ultimo, and to letter No. 97 dated 25th January last.

By order.

HOME DEPARTMENT. *The* 11*th March*, 1858. (Signed) R. B. CHAPMAN, *Under Secy. to the Govt. of India.*

Ordered to be communicated to the Board of Revenue, in continuation of Extract Minutes of Consultation dated 12th March 1858, No. 328.

(Signed) H. FORBES,
Acting Secretary to Government.

Extract from the Minutes Consultation, dated 16*th April* 1858, *No.* 488.

Read again letter from H. Newill, Esq., Director of Revenue Settlement; dated 19th and recorded in Diary to Consultation 30th March 1858, No. 409.

Read also the following letter from F. LUSHINGTON, Esq., Civil Auditor; to H. FORBES, Esq., Revenue Secretary to Government, dated Fort Saint George 29th March 1858, No. 650.

SIR,

With reference to Extract Minutes of Consultation of 24th instant No. 391, calling upon me to afford all the information in my power about the Settlement Establishments in the North West Provinces and Bengal, I have the honor to state that I possess no information, official or personal, of the nature of the decision, which I mentioned in my letter to the Director of Revenue Settlement that I believed had been come at in those Presidencies; nor am I in a position to assert that any decision at all has been passed. As Assessment Establishments have existed, if they do not now exist, in Bengal and the North Western Provinces it occured to me, that a question of the importance mooted by Mr. Newill could not but have elicited attention and led to save authoritative declaration on the point. Had I known the nature of the decision in question I should have informed Mr. Newill of it in the first instance.

1. In bringing to notice the opinion of the Civil Auditor, that the service of individuals who may be employed in the Survey and Assment Departments recently sanctioned, will not be allowed to reckon towards superannuation pensions, Mr. Newill represents, in his letter of the 24th March, the serious embarrassment which such a limitation of the pension rules would entail on the organization of the establishments, as no respectable or efficient servant would attach himself to a Department not holding out the prospect of a future provision.

2. The Government do not agree with the Civil Auditor, that the Departments of Revenue Settlement and Survey are to be considered as temporary establishments. They will be entertained for at least fifteen years; and it is absolutely necessary that the heads of both departments should be able to attract to them the most able men that can be obtained. No amount of salary would lead a public servant to sacrifice all hope of a pension; and thus, one of the most important undertakings in which this Government could ever be concerned, would partially fail, from an unwise economy in limiting the pension rules.

3. The Governor in Council is therefore pleased to direct that the servants of the Revenue Survey and Settlement Departments be considered eligible to pension, under the same rules that apply to all other departments.

(Signed) H. FORBES,
Acting Secretary to Government.